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ABSTRACT

This program guide was prepared by two business education leaders for use in teaching typewriting on the secondary level. In addition to offering suggestions on teaching techniques and methods, this 4-semester outline presents the major organizational problems facing the typewriting teacher. Specific problems given attention include teaching the handicapped, allowing for individual differences, student evaluation, and the psychological principles of teaching typewriting. Other topics included in the 25 chapters cover: (1) keyboard presentation, (2) speed development, (3) problem solving in production typewriting, (4) importance of demonstrations, (5) educational and personal background of typewriting teachers, (6) room layout and equipment, (7) teaching aids, and (8) research in typewriting. Most of the chapters have a separate bibliography. (JS)

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A Guide for the Improvement of Typewriting Instruction

Second Edition

GEORGIA DEPARTMENT OF EDUCATION
JACK P. NIX, *State Superintendent of Schools*

ATLANTA, GEORGIA
1968

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A Guide for the Improvement
of
Typewriting Instruction

U.S. DEPARTMENT OF HEALTH, EDUCATION
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Second Edition

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FOR

BUSINESS AND OFFICE EDUCATION SERVICE
VOCATIONAL EDUCATION DIVISION

GEORGIA DEPARTMENT OF EDUCATION
ATLANTA, GEORGIA 30334

The Typewriting Guide that was developed and published in 1959 has been acclaimed across our nation and throughout the world.

A need for revision of this Guide has been apparent for some time. This task of revision was assigned to Dr. Zenobia Liles, who helped develop the 1959 Guide while on the staff of the Georgia Department of Education and to Dr. Parker Liles of Georgia State College. This husband and wife team are nationally recognized business educators.

Through the use of this instructional aid, it is hoped that the best typewriting program possible will be provided.

The time, effort, and interest expended by those preparing this revised Guide is appreciated. The Department of Education takes pleasure in presenting this Typewriting Guide for use in the schools of our state.

Jack P. Nix
State Superintendent of Schools

George Mulling
State Director
Division of Vocational Education

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IMPORTANCE OF TYPEWRITING

When typewriters were first used in business, the operators were self-trained; there was no formal classroom instruction. In fact, prior to 1920, the U.S. Office of Education did not even report enrollment figures for typewriting. However, by 1922, it was reported that 281,524 students were enrolled in typewriting classes. Now, approximately fifty years later, enrollment statistics show that typewriting is one of the most popular courses in the secondary school curriculum. Many factors are responsible for the increased enrollment in typewriting classes. Three of the most important factors are recognition of typewriting as a tool of communication, increase in number employed in office occupations, and introduction of automation.

Today, typewriting is being recognized more and more as a communication skill and as a tool of literacy for everyone. Rowe[1] says that two of every three students enrolled are taking typewriting as an elective general education offering. Therefore, the desire for typewriting skill to use in personal activities is increasing. This statement implies that typewriting is now recognized by almost everyone as a medium to express thoughts, ideas, plans, and facts in words and figures. Hosler[2] further emphasizes the popularity of the typewriter when he points out that surveys taken in many different regions of the country show that from 75 to 90 percent of the students taking typewriting have a machine available for their use outside the classroom. These facts prove that typewriting is a tool of literacy for everyone and that its use is increasing each day.

The second factor that has caused a tremendous growth in typewriting enrollment is the need for office workers. Numerous research studies have shown that typewriting is the most frequently used skill of office workers. Therefore if students possess adequate typewriting skill, this skill will be an effective aid to securing initial employment. Because of this employment objective, typewriting was included in the secondary school curriculum. Since this subject was first included in the curriculum, enrollments have increased and opportunities for employment have increased. Furthermore, according to projections made by the Bureau of Labor Statistics, the long-term upward trend in white-collar employment is expected to continue during the 1960's with an expected increase of 30 percent more in 1970 than 1960.[3] Therefore, typists who are vocationally competent are and will be an integral part of business activities. Also, the typewriter is and always has been the basic office machine.

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[1] John L. Rowe, "How to Meet Changing Needs in Typewriting—the Typewriter Is Not an Island," *Business Education World,* 44 (September, 1963), 9-11.

[2] Russell J. Hosler, "Homework in Typewriting—Definitely Yes," *Business Education Forum,* 20 (February, 1966), 22.

From the Bureau of Labor's future projection, it is obvious that the need for office workers has not been reduced. However, Clem[4] says that automation has brought about a change in the types of office activity. Much of the routine work in large offices is being done by machine and the low-level skill and low-speed copying are fading from the office. These changes mean that typists today must be even more proficient. In addition to typewriting skill, other skills and abilities become even more important. Students must develop desirable character traits and behavior patterns; they must learn to think logically; and they must learn to make judgments and to solve problems. Because of the need for increased typewriting skills and the need for related skills and knowledges, typewriting teachers have the responsibility to teach more in the same amount of time. More timing of classroom activities will be required. Therefore, technological changes have increased the pressure of classroom activities.

Rahe[5] is even more optimistic about the future of typewriting. He believes that the future enrollments in typewriting classes will increase, sales of typewriters will increase each year, improvements will be made in the typewriters, and methods of teaching typewriting will improve. In other words, the typewriting success story has not been completed.

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[3] Carol Barry, "The White-Collar Worker in the 20th Century," *Occupational Outlook Quarterly*, Washington: U. S. Department of Labor, Bureau of Labor Statistics, 1961.

[4] Jane E. Clem, "The Influence of Automation on the Teaching of Typewriting," *Business Education Forum*, 14 (April, 1960), 22.

[5] Harves Rahe, "Typewriting—A Basic Tool of Communication," *Business Education Forum*, 16 (November, 1961), 5.

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OBJECTIVES

For typewriting instruction to be effective, objectives must be determined; and they must be carefully studied and followed. Crawford is of the opinion that the purpose of typewriting instruction should not be diluted or minimized. Regardless of the course title, he believes that the primary goal of any typewriting course is mastery of the machine called "typewriter."[1] Therefore, the primary aim of the first two semesters should be to acquire a basic skill—the foundation upon which all other objectives must be built.

Probably many typewriting teachers will question two semesters for the development of a basic skill. Until students develop a satisfactory basic skill, which is essential to efficient use of the typewriter, they should not become involved in application and problem-solving activities. Hosler[2] believes that vocational competency in typewriting can be only as strong as its foundation. Therefore, without a strong basic typewriting skill, there will be little progress in the vocational typewriting classes. Students use a skill in direct proportion to the skill that has been developed. Crawford presents, in the following quotation, an even stronger justification for building a satisfactory basic skill:[3]

> Whether typewriting is taken for so-called personal use or for job preparation, the real measure of a typist's ability is found in his capacity to put his skill to work. A student interested in typewriting for "personal" use seeks to learn to type, not for taking formal speed tests, but for using his skill in preparing notes.

A personal typewriting course for one semester does not provide sufficient skill for an office position when typewriting is the major portion of the activity. Frequently, however, students who have had only one semester of personal typewriting will obtain office positions. These marginally trained workers are no credit to their employers, to themselves, or to the school. An individual with only a personal typewriting skill will have a great deal of difficulty in meeting the demands of a modern business office. Most offices require a typewriting skill of 40 to 60 words a minute. Thus, the abbreviated typewriting course in today's curriculum is of insufficient length for most students to acquire this necessary vocational skill.

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[1] T. James Crawford, "Fundamental Considerations of Successful Typewriting Instruction," *Business Education Forum*, 17 (October, 1962), 20, 28.

[2] Russell J. Hosler, "Objectives for High School Typewriting," *UBEA Forum*, 3 (November, 1948), 44.

[3] T. James Crawford, "Toward a Broader Concept of Problem Production Typewriting." *Practices and Preferences in Teaching Typewriting*, Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 72.

On the other hand, the major objective of advanced typewriting is the development of vocationally competent students. To be vocationally competent, many business educators believe that the third and fourth semesters of typewriting should be devoted to application and to production typewriting activities. However, in advanced typewriting, it is also necessary to constantly develop and maintain additional basic skill. Bateman and Hogancamp[4] say that the third semester of typewriting should be for those who meet the high standards that are required for intensive vocational preparation and who are interested in becoming vocational typists, or who need high levels of typewriting skill for stenographic or secretarial work. Many business educators, at the present time, seem to think that the third and fourth semesters of typewriting should be for vocational students *only*.

INFLUENCE OF OBJECTIVES ON SUBJECT MATTER

During the first semester in typewriting, the differing objectives should not affect classroom activities. *All* students must develop basic skills that are essential for application and production typewriting. Bateman and Hogancamp[5] believe that students who meet reasonable standards required for the second semester of typewriting can also be taught satisfactorily together. However, they believe that the third semester should be for those students who meet the high standards required for intensive vocational preparation.

Because the objectives influence many decisions that must be made about typewriting courses, grade placement, length of course, length of period, and amount of credit are topics that will also be included in this section.

Grade Placement: Typewriting instruction should begin in the tenth grade.

Length of Course	Typewriting I	One Semester	All Students
	Typewriting II	One Semester	All Students
	Typewriting III	One Semester	Vocational Students
	Typewriting IV	One Semester	Vocational Students

Length of Period: Fifty to sixty minutes per day, five days per week. (Double periods are not recommended.)

Credit: One-half unit per semester

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[4] Bobbie Bateman and Thomas B. Hogancamp, "The Three-Semester Course in Typewriting," *Business Education Forum,* 18 (November, 1963), 7.

[5] *Ibid.*

In this publication, the general objectives and the specific objectives are given for the total typewriting program. However, the course content will be given for each semester. This outline of the course content can be used as a guide so that typewriting instruction may be adapted to meet individual needs and other needs.

GENERAL OBJECTIVES

1. To develop personal and vocational skills in typewriting.
2. To develop competency in attaining standards set for straight copy and production materials.
3. To develop attitudes, character traits, and behavior patterns; that is, concentration, judgment, initiative, cooperation, resourcefulness, perseverance, and emotional control.
4. To develop the ability to understand oral and written instructions, to analyze problems, and to solve these problems successfully.
5. To increase students' ability to spell, punctuate, syllabicate, and to compose good English sentences and to integrate these related learnings with typewriting skills.

SPECIFIC OBJECTIVES

1. To develop skill and to improve technique in control of operative parts and the keyboard.
2. To analyze errors and to provide remedial drills.
3. To develop an appreciation of the value of equipment and the importance of caring for it.
4. To teach students to proofread so that they will be able to correct their papers rapidly and accurately.
5. To develop the ability to arrange and type different kinds of materials on various sizes of stationery, for example, handwritten copy, personal and business letters, memorandums, and tabulated materials.
6. To develop the ability to type from rough drafts and to make the indicated corrections, which require a knowledge of proofreader's marks.
7. To teach students to center material vertically and horizontally.
8. To develop skill in using carbon paper.
9. To teach the styles of letters and the types of punctuation.

10. To develop skill in addressing envelopes, folding letters, and inserting them into envelopes.
11. To teach students to type postal cards, index cards, labels, and telegrams.
12. To develop the ability to type outlines, title pages, tables of contents, manuscript pages with footnotes, and bibliographies.
13. To emphasize the importance of developing skill in typing figures and characters.
14. To teach the students how to erase correctly.
15. To arrange and type a variety of specialized forms which will include financial statements, checks, invoices, vouchers, legal documents, etc.
16. To fill in printed business forms and printed documents.
17. To develop the ability to compose letters, themes, and to take dictation at the typewriter.
18. To develop an understanding of general office procedures.
19. To develop skill in the preparation of multiple carbons, stencils, and masters.
20. To teach students to align material, to crowd and spread letters, to chain feed and backfeed envelopes and cards, to make corrections on bound copies, and to justify right margins.

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COURSE CONTENT

SEMESTER I

All parts of the typewriter should not be introduced at the beginning of the first semester; only the parts that are going to be used should be presented. Other parts should be taught as they are needed. *Correct use of all machine parts should be demonstrated.*

I. Presentation of Alphabetic Keys

II. Presentation of Figures and Symbols

III. Development of the Seven Basic Techniques
  A. Appropriate level of response
  B. Rapid and correct stroking
  C. Control of operative parts
  D. Eyes on copy
  E. Relaxation
  F. Minimum of hand and arm motion
  G. Right mind set

IV. Development of Speed and Control

V. Application of Typewriting Skill
  A. Centering
  B. Typing simple business letters with single carbon
  C. Addressing envelopes
  D. Folding and inserting letters in envelopes
  E. Typing from unarranged and handwritten copy

VI. Development of Proofreading Skill

VII. Composition at the Typewriter
  A. Technical English
  B. Punctuation
  C. Capitalization
  D. Syllabication
  E. Expression of Numbers

VIII. Care of the Typewriter and How to Change the Ribbon

SEMESTER II

I. Skill Improvement

- A. Speed emphasis
  1. Forced speed spurts
  2. Continuity practice
  3. Timed writings
  4. Dictation of words, sentences, paragraphs

- B. Control emphasis
  1. Continued emphasis on improvement of basic techniques
  2. Continuity practice
  3. Timed writings

II. Production Typewriting

- A. Letter writing
  1. Various styles
  2. Letter parts
  3. Special lines
  4. Carbon copies (single and multiple)
  5. Rough drafts
  6. Form letters
  7. Two-page letters
  8. Short letters typed from dictation
  9. Punctuation
  10. Application letters
  11. Letters with tabulated material and long quotations
  12. Letters with enumerated items
  13. Copies of incoming letters
  14. Letters on half sheets
  15. Stationery

- B. Addressing envelopes
  1. Sizes
  2. Placement of address

- 3. **Spacing**
- 4. **Styles**
- 5. **Notations**
- 6. **Folding letters**
- 7. **Inserting in envelopes**

C. Manuscripts

- 1. **News releases**
- 2. **Magazine articles**
- 3. **Book manuscripts**
- 4. **Outlines**
- 5. **Tables of contents**
- 6. **Footnotes**
- 7. **Bibliographies**

D. Tabulations

- 1. **Open tables**
- 2. **Ruled tables**
- 3. **Boxed tables**
- 4. **Unarranged tables**
- 5. **Financial statements**

E. Legal documents

F. Minutes of meetings

G. Programs

H. Menus

I. Office bulletins

J. Centering

- 1. **Vertical**
- 2. **Horizontal**
- 3. **Spread centering**

K. Forms

- 1. **Invoices**
- 2. **Credit memorandums**

        3. Statements of account
        4. Purchase orders
        5. Filling in personal information blanks
        6. Personal data sheets
    - L. Cards
        1. Postal cards
        2. Index cards
    - M. Telegrams
        1. Classification
        2. Arrangement and typing
    - N. Addressing labels
    - O. Memorandums

III. Composition at the Typewriter (Thinking While Typing)

    A. Completion of printed forms
    B. Filling in missing words
    C. Typing foreign words and phrases
    D. Typing sentences backward
    E. Direct dictation
    F. Completion of sentences
    G. Correction of sentences
    H. Typing responses to questions asked by teachers

IV. Related learnings

    A. Punctuation marks
    B. Number guides
    C. Syllabication
    D. Capitalization
    E. Organization of materials and desk arrangement
    F. Care of typewriter
    G. Alignment
    H. Justifying right margins
    I. Squeezing and spreading letters

SEMESTER III

I. Skill Improvement

- A. Speed drills
- B. Accuracy drills
- C. Number drills
- D. Continuity practice
- E. Timed writings
- F. Dictation of words, sentences, paragraphs

II. Review

- A. Centering
- B. Erasing
- C. Correspondence
- D. Tabulation
- E. Manuscripts
- F. Forms

III. Production

- A. Letters
    1. Letters with tabulations in arranged form
    2. Letters with tabulations in unarranged form
    3. Letters in rough-draft form
    4. Letters with information to be inserted
    5. Letters made up of form paragraphs
    6. Letters on government-size stationery
    7. Letters with more than one page
    8. NOMA simplified letter
    9. Notations in business letters

- B. Interoffice memorandums

- C. Tabulations

- D. Envelopes
    1. Chain feeding
    2. Window envelopes

- E. Manuscripts

- **F. Reports**
- **G. Mailing lists**
  - **1. Arrangement of information on index cards**
  - **2. Classification, numbering, and coding of cards**
- **H. Labels**
- **I. Carbon copies**
- **J. Telegrams**
- **K. Rough drafts**
- **L. Postal cards**
- **M. Legal documents**
- **N. Forms**
- **O. Ditto masters (direct or liquid process)**
  - **1. Preparation of model**
  - **2. Preparation of master**
  - **3. Correction of master**
- **P. Stencils**
  - **1. Preparation of model**
  - **2. Preparation of stencil**
  - **3. Correction of stencil**

IV. Related Learnings

- **A. Division of words**
- **B. Kinds of typewriters**
- **C. Variations in typewriters**
- **D. Sizes and weight of stationery**
- **E. Typing of rulings**
- **F. Off-the-line typing**
  - **1. Ratchet release**
  - **2. Variable spaces**
- **G. Titles**
- **H. Apostrophes**
- **I. Leaders**

V. Traits
  A. Dependability
  B. Cooperation
  C. Initiative
  D. Promptness
  E. Accuracy
  F. Emotional stability

VI. Work Habits
  A. Following directions
  B. Organizing desk and work materials
  C. Proofreading

SEMESTER IV

I. Skill Improvement
  A. Accuracy drills
  B. Speed drills
  C. Number drills
  D. Posture-checkup drills
  E. Hand-position drills
  F. Insertion drills

II. Correspondence
  A. Letters
    1. Personal business letters
    2. Letters with enclosures
    3. Letters with tabulated reports
    4. Exact copies of incoming letters
    5. Blocked letters with displays
    6. Form letters with fill-ins
    7. Application letters
    8. Personal data sheets

  B. Memorandums

  C. Telegrams

  D. Special lines
    1. Subject line

    2. Attention line
    3. Standard carbon copy notation
    4. Blind carbon copy notation (BCC)

III. Forms
  A. Checks
  B. Notes
  C. Payrolls
  D. Voucher checks
  E. Coupons
  F. Visible index cards
  G. Discount invoices
  H. Telephone message blanks
  I. Bills of lading
  J. Fill-in postal cards
  K. Fill-in index cards
  L. Bills of sale
  M. Purchase orders
  N. Correspondence transfer sheets

IV. Legal Forms and Documents
  A. Proxies and powers of attorney
  B. Acknowledgments
  C. Endorsements
  D. General releases
  E. Contracts
  F. Wills and endorsements
  G. Leases
  H. Folding

V. Oversized Tabulations — 14 to 16 Columns

VI. Spacing
  A. Half spacing
  B. Single spacing
  C. One and a half spacing
  D. Double spacing

- E. Triple spacing
- F. Spreading and squeezing words

VII. Stencils

- A. Preparing master copies
- B. Typing stencils
- C. Correcting stencils
- D. Patching stencils

VIII. Manuscript Display

- A. Justifying lines
- B. Display lettering
- C. Display boxing
- D. Banner heading
- E. Bulletin board captions
- F. Advertisements

IX. Special Techniques and Problems

- A. Constructing brackets
- B. Centering on lines
- C. Using the diagonal
- D. Spread centering
- E. Underscoring for italics
- F. Taking a Civil Service Test
- G. Inserting thick carbon packs
- H. Quotations within quotations
- I. Drawing lines on the typewriter
- J. Changing ribbons
- K. Back feeding bound papers
- L. Horizontal half spacing
- M. Typewriting contest rules
- N. Direct dictation
- O. Characters not on the keyboard
- P. Centering between vertical lines
- Q. Composition of short letters
- R. Chain feeding of envelopes and cards

X. Social Traits
  - A. Cooperation
  - B. Cheerfulness
  - C. Courtesy
  - D. Ability to get along with others

XI. Character Traits
  - A. Dependability
  - B. Initiative or resourcefulness
  - C. Acceptance of responsibility
  - D. Punctuality and attendance
  - E. Poise and emotional stability
  - F. Loyalty
  - G. Honesty and trustworthiness
  - H. Perseverance or ability to follow through

XII. Physical Traits
  - A. Personal appearance and grooming
  - B. Health

XIII. Mental Traits
  - A. Judgment and common sense
  - B. Ability to grasp and follow instructions
  - C. Ability to plan and organize work

XIV. Attitudes
  - A. Adaptability
  - B. Interest and enthusiasm
  - C. Willingness to do undesirable but essential tasks
  - D. Willingness to accept criticism

XV. Technical Traits
  - A. Accuracy
  - B. Neatness in maintenance of surroundings
  - C. Efficiency
  - D. Neatness of work
  - E. Good speech habits
  - F. Thoroughness
  - G. Technical skill in tasks performed

PSYCHOLOGICAL PRINCIPLES OF SKILL DEVELOPMENT

The building of basic skills should be the primary concern of the typewriting teacher. Skills should be built to the point of mastery before they are employed to any great extent in problem-solving situations. A skill may be considered to be mastered when it can be used effectively when something else is focal in consciousness. An attempt to apply a partially mastered skill is likely to result in destruction of correct techniques which have been acquired, with consequent confusion and frustration to the student. The teacher must know when the skill has been successfully automatized so that it can be applied with beneficial results.

"A 'psychology of skill' is neither more nor less than a statement of the conditions that must be present for the efficient learning of tasks involving muscular movements as responses," according to West.[1] There are many fundamental psychological principles which underlie the methodology of skill building. The validity of these principles is unquestioned; they have been demonstrated time and time again. The teacher must be acquainted with these principles in order to achieve satisfactory results in the teaching of any skill.

> As such, these psychological principles arising from the scientific study of learning processes have two kinds of applications to education: (a) they can and should serve as yardsticks or bases for evaluating any given instructional procedure, and (b) they provide a basis for identifying, deriving, developing, constructing, inventing effective instructional procedures and materials.[2]

Some of the most important psychological principles which must be applied in the teaching of typewriting are discussed briefly below.

1. *Objectives and Goals Must Be Definite and Must Be Known and Accepted by the Student.*

The teacher must have a definite objective for every type of activity used during the class period. Every type of drill and exercise must be designed to accomplish a specific purpose, and the student should be aware of that purpose. Unless he understands the purpose of the practice and accepts that purpose as his own and one which is definitely beneficial to him, his progress will not be satisfactory. Goals should be simple; goals should be within reasonable attainment; goals should be cooperatively determined by teacher and student; and as goals are reached, new goals should be established. Further, students learn more thoroughly and quickly if they know the progress they are making in attaining their desired goals and objectives. This is in accordance with the reinforcement principle applicable to all learning.

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[1] Leonard J. West, "Psychology of Skill: Principles for Teaching Typewriting," *Methods of Teaching Typewriting,* Yearbook of the Eastern Business Teachers Association, 38 (Somerville, New Jersey: Somerset Press, Inc., 1965), p. 1.

[2] *Ibid.*

2. *Repetition Is an Essential Factor in Skill Building.*

Mere repetition as busy work may or may not accomplish anything. Repetition does not guarantee learning. It is not the cause of learning. Repetition does give an opportunity for the causes of learning to operate. As West[3] points out, "Thus, the first point to make about repetition is that it teaches nothing in and of itself, but instead merely produces something (namely, responses) which can be reinforced through knowledge of results. Without a response, there is nothing to reinforce; and without reinforcement, there is no learning." Also the old adage "Practice makes perfect" is true only when the essential ingredients of learning are present, that is, when correct techniques are employed during practice. Also, repetition should be motivated by an interest in the drill and understanding of the purposes to be accomplished by the drill. Through repetition, the learner improves and refines the elements and the composite pattern of the skill.

3. *Imitation Is an Important Factor in the Acquisition of a Skill.*

The teacher should be able to demonstrate the skill at every level of the learning process. Every aspect of basic typewriting skill and every application of the skill should be illustrated through group demonstration, supplemented by individual demonstration as found necessary through observation of students. Often when students cannot comprehend the terminology used in telling how to acquire a skill or cannot visualize what is being said, they can accomplish the desired results through imitation of correct techniques. Some students respond best to auditory stimuli while others respond best to visual stimuli. The teacher, therefore, should appeal to as many senses as possible in the teaching of typewriting. The proper use of demonstration, however, increases the rate of learning on the part of all students.

4. *Environmental Factors Affect Learning Significantly.*

Typewriting skill is acquired best under ideal learning conditions. These environmental factors include physical surroundings and emotional atmosphere. The typewriting room and all the equipment should be conductive to efficient learning. The room should be attractive, well heated, well ventilated, and well lighted. Typewriters should be modern and should be maintained in excellent operating condition. The beginning student should use the same make of typewriter throughout the beginning stages of skill development. The attitude of the teacher is the chief factor controlling the emotional atmosphere of the classroom. The teacher's attitude toward the student should be positive, inspiring enthusiasm, confidence, relaxation, poise, and cooperation. These characteristics on the part of the student must be present if optimum learning is to take place.

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[3] *Ibid.*, p. 9.

5. *Skills are Best Attained through Short Intensive Efforts.*

It is possible to perform a skill at higher than normal levels for short periods of time. The student can put forth maximum effort and concentration with a minimum of fatigue. This sets the pattern for higher performance levels and gives the student confidence. Continued practice enables him to maintain this new level of performance for progressively longer periods of time. Refinement of techniques will help regain and maintain proper control. Constant practice at comfortable performance rates cannot result in breaking the barrier into new performance levels. The student must make an effort to strike the keys faster than ever before. This can be done effectively only through short speed-spurt drills.

6. *The Motion Pattern of the Expert Should Be Taught from the Start.*

The fast movements of the expert differ in their paths or patterns from the slow motions of the beginner. Typewriter keystroking is called a ballistic motion. Ballistic motions cannot be made slowly. Practice tends to fixate the type of motions practiced. Therefore, for effective results in teaching a skill which involves ballistic motions, the student should be taught fast stroking from the beginning. These initial fast movements may appear to be awkward and diffuse, but the purpose of practice is to refine them.

7. *The Teacher Must Be Able to Recognize the Elements of the Pattern.*

Unless the teacher can recognize the elements of proper technique, he cannot help the student achieve mastery through improving and strengthening correct techniques and eliminating the practices which are hindering progress. If the teacher cannot analyze the component factors of skill building, he cannot direct remedial procedures for improving faulty techniques or even guard the learner against the information of harmful practices. Through observation of the student at work, rather than by merely checking the student's work, the expert teacher guides the student in achieving the motion pattern of the expert.

8. *Excessive Testing Is Detrimental to Skill Building.*

Testing is an essential part of the teaching process, but it should not be used as a substitute for it. Excessive time spent in giving speed tests is valuable time lost from drills designed to improve techniques which are the basis of skill development. About the only thing the student learns from taking speed tests is how to take a speed test. Adequate time for growth should be allowed between tests. A gain of from one-half to one word per minute per week is the maximum which can be expected after the first semester. Obviously it is not necessary to give many tests in order to determine what progress has been made. Testing as busy work cannot be condoned.

9. *Proper Motivation Increases the Rate of Skill Development.*

Motivation is an important key to learning. The well-motivated student is receptive, thinks positively, puts forth maximum effort, and is not easily discouraged. The repetition practice necessary to skill development can become monotonous unless the teacher provides sufficient variety of drill within each class period. Attention and interest are stimulated through purposeful practice, the setting of individual goals, and attention to individual interests and needs. The proper use of awards is beneficial as a motivation device. The initial motivation with which many students enter typewriting soon wanes unless the teacher is skillful in the use of motivation devices.

10. *Plateaus in Skill Learning Can Be Prevented or Reduced Through Proper Attention to Techniques.*

As Tinelli points out, "The three most prominent reasons for plateaus in typewriting are boredom, methods or techniques, and personal or inner mood."[4] Perhaps techniques are the most important of all. Adequate attention should be given to the establishment of proper techniques in the initial stages of skill building. Prevention of faulty techniques is easier than correction. Faulty techniques set a ceiling on speed development beyond which the learner cannot go unless they are corrected. Attention should be focused on improvement of techniques rather than on additional practice, because incorrect practice does not result in improvement. More emphasis should be placed on evaluating student techniques in typewriting and less on the finished product. It is more important to know *how* the student produces the paper than to know *what* he puts on the paper. Evaluation and grading of techniques help to motivate improvement on the part of the student.

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[4] Helen Tinelli, "The Plateaus in Typing—and What to Do About Them," *Balance Sheet,* 46 (January, 1965), 209.

11. *The Emphasis in Teaching Beginning Typewriting Should Be in This Order: Techniques, Speed, and Accuracy.*

Probably the most important single factor in typewriting skill building is correct techniques. If the techniques are correct, practice can make perfect. The old idea was that accuracy must be achieved through requiring perfect copy; it was believed that speed would take care of itself. Recent research tends to prove that the speed-before-accuracy approach results in significantly higher speed from the beginning with an equal degree of accuracy in the end. All-out drives for speed at the expense of proper control can be equally as disastrous as the accuracy approach. Alternate drives for speed and accuracy are recommended for high level skill development.

12. *Planned Teaching Procedure on the Part of the Teacher Is Necessary for Satisfactory Student Achievement.*

Good teaching consists in directing the learning activities of the students. "Holding a class" will not, therefore, qualify as good teaching. Specific activities must be planned for every minute of the class period with time allocations for each activity. Warm-up exercises, speed-spurt drills, techniques drills, teaching of new content, production work, evaluation, to name a few, constitute typical classroom activities. Teaching-learning activities are the media of accomplishing the desired objectives of the course. Teacher planning (or lack of it) will be in evidence from the beginning of the period until the end.

13. *Easy Practice Material Is More Conducive to Skill Development Than Difficult Practice Material.*

The use of easy practice material contributes to speed and fluency of key stroking thus enabling the student to achieve higher levels of skill development. Easy, controlled copy builds confidence, promotes accuracy, and motivates the student. Mursell recommends plenty of carefully graded practice material for developing fluency:

> Most experts prepare themselves for contests by practicing on easy material taken much below their maximum rate of speed. They center upon easy and rhythm of motion, and pay attention to any factors that seem to cause interruptions. One of the mistakes commonly made by teachers and coaches who are trying to build some

skill is to fail to give sufficient amount of easy, comfortable practice.[5]

Practice material of gradually increasing syllabic intensity should be used as maturation takes place in skill development.

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[5] James L. Mursell, "The Rhythm of Learning," *Psychology Applied to Skill Building,* B.E.W. Service Booklet 23, (New York: The Gregg Publishing Company), p. 18.

BASIC TYPEWRITING TECHNIQUES

Many typewriting authorities believe that building correct technique is the first objective in typewriting; they also believe that the development of correct techniques is the foundation for the development of high skill in typewriting. Therefore, the main emphasis while learning the keyboard should be the development of typewriting techniques. This statement means that correct techniques should be stressed rather than speed or accuracy. Speed and accuracy are achieved through the use of good techniques; and poor techniques cause errors, which are blocks to speed. Lloyd makes the following statement in behalf of typewriting technique:[1]

> Nothing in a typing course outweighs the development of technique, and nothing must be allowed to interfere with its development. . . . Basic technique is so important, in fact, that any teacher who increases the attention his class devotes to it will see—like magic—a corresponding and proportionate improvement in allover performance by the entire class.

TECHNIQUE DEVELOPMENT

According to Lloyd[2], technique has two meanings — general and specific. In the general sense, he defines technique as the whole manner of operating the machine — it is basic skill. In the specific sense, he defines technique as the habits and motions used in a particular operation.

Robinson[3] defines technique as the character of the mental and physical response to a visual, verbal, or mental stimulus.

Lessenberry lists the following seven basic typewriting techniques:[4]

1. Type on the appropriate level of response.
2. Use appropriately rapid and correct stroking of the keys.
3. Return the carriage with precision; operate the space bar, the back-space key, margin release key, and the tabular mechanism with certainty and economy of motion, and shift for capitals with exactness.
4. Hold the eyes on the copy while typing and learn how to glance at the copy when it is necessary to appraise spacing of material for the line length or determine space left on the page for further lines.

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[1] Alan C. Lloyd, "The Care and Feeding of Good Typing Technique," *Business Education World*, 38 (February, 1958), 11-14.

[2] *Ibid.*

[3] Jerry W. Robinson, "Procedures for Refining Typewriting Techniques," *Journal of Business Education*, 36 (January, 1961), 155-156; 36 (February, 1961), 199-200.

[4] D. D. Lessenberry, "Basic Skill for Production Typewriting," *UBEA Forum*, 4 (November, 1949), 9-12.

5. Type at all times (irrespective of materials to be typed) with minimum of hand and arm motion.
6. Know how to type with minimum of tension. Mental relaxation that is based on confidence in the ability to do well whatever has to be done will produce the desired physical release from taut muscles.
7. Approach each day's practice (whether skill building or production typing) with the right mind set—the attitude that comes from staying with a problem until it has been typed successfully.

He believes these techniques are basic at all levels of the skill and that they must be initiated in the beginning lessons and skillfully improved through right practice in succeeding lessons. He also stresses the fact that it is more important for teachers to observe students and to help them develop correct techniques than it is to check the finished work of students. In other words, he suggests that students' papers should not be graded during the first several weeks of typewriting. If teachers will follow his suggestions, students will have little opportunity to form incorrect habits that will have to be broken to attain higher speed and accuracy.

APPROPRIATE LEVEL OF RESPONSE

Typewriting authorities classify typewriting stroking patterns into the following types of responses:[5]

1. *Stroke Response*. Typist sees, thinks, and types letter by letter. The single stroke is the largest unit a student can control in the initial stages. Therefore, this type of response represents the lowest order of stroking.
2. *Word-Recognition Response*. Typist sees, thinks, and types the word as a unit rather than letter by letter.
3. *Combination Response*. Typist sees, thinks, and types some sequences letter by letter, others syllable by syllable or word by word, and still others word group by word group.

When typing rhythmically, some stroke sequences are typed more rapidly than others; but the writing is without interruptions and pauses. Rhythm is characterized by a continuous movement of the carriage, very rapid typing of easy-letter sequences and a slower more careful typing of difficult-letter sequences. Therefore, rhythm is an essential factor in developing typewriting skill.

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[5] Robinson, *loc. cit.*

STROKING

From the first day, students must acquire the correct touch concept. These basic stroking skills must be constantly developed and consistently refined because they must be built to increasingly higher levels as the students progress.[6]

The correct typewriter touch key stroke on a nonelectric machine is easily identified. Rowe[7] says that it has a single sound, which is, on a nonelectric typewriter, sometimes referred to as a ballistic stroke. Thus, the following factors must be considered in the development of proper stroking:[8]

1. Choice of the appropriate finger to make the reach.
2. Direction of the reach.
3. Quality of the reach itself.
4. Speed of finger movement in making the reach, in striking and releasing the key, and in returning the finger to home-key position.
5. "Feel" of the appropriate movements.

Therefore, teachers should stress methods and techniques of correct stroking. Students should be taught to use a ballistic stroke, to keep fingers curved and close to home keys, to release the key quickly and to pass to the following stroke without a pause. Demonstrations should be given, drills should be dictated, and direct dictation at the typewriter should be given.

MACHINE OPERATION

At first, students must not be burdened with the names of all the typewriter parts. Students should learn the parts as they are used. Only six nonkeyboard parts of the typewriter are used frequently while typing. These nonkeyboard parts are the space bar, shift keys, backspace key, carriage-return lever, margin release, and the tabulator key. The speed of operating these parts should be appropriate to the stroking speed. Faulty operation of any one of these parts can cause a reduction in efficiency and production. Lessenberry gives the following advice to typewriting teachers:[9]

> Most students at any level of skill can increase their words per minute by five to ten words through the improvement of the tech-

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[6] John L. Rowe, "The Development of Correct Touch," *Business Education World,* 44 (October, 1963), 29-32, 38.

[7] Robinson, *loc. cit.*

[8] *Ibid.*

[9] Lessenberry, *loc. cit.*

niques of controlling these six operative parts of the typewriter. It isn't necessary to type faster; all they have to do is blend into one continuous pattern of movement continuity of stroking and controlled use of the six operative parts.

Daily drills should be given so that the students will have an opportunity to develop skill in using these parts.

EYES ON THE COPY

A perusal of professional literature reveals that there is a definite trend toward the use of visible keyboards for beginning typewriting instruction. Rahe[10] believes that in beginning typewriting classes, students are encouraged to use the sight-approach method; that is, students look at the keyboard, wall chart, textbook illustration, or blackboard diagram to see the distance and direction the finger must reach to strike the key correctly.

However, after this instructional period, students must keep their eyes on the copy while typing. Teachers must constantly remind students that looking back and forth is detrimental to their progress. *Writing most of the time and not just part of the time boosts the average speed of a typist.*

QUIET KEYBOARD CONTROL

Quiet keyboard control is characterized by (1) almost motionless hands and arms, (2) minimum wrist movement, and (3) hands poised near home-key position — not bounding in the air. Action must be centered in the fingers, not in the hands or arms.

When beginners repeat these inefficient motions, these motions become fixed. When these inefficient motions are eliminated, rapid rates will be easier to attain.

Robinson says that inefficient motions can be overcome by the following methods:[11]

1. Demonstration and student imitation.
2. Concentrated attention to carefully constructed practiced materials.
3. Reminding the student frequently to: Hold the hands and arms quiet; let the fingers to the work.

Push toward greater speed by cutting down on waste motions.

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[10] Harves Rahe, "Implications of Research in Typewriting," *National Business Education Quarterly*, 29 (March, 1961), 8.

[11] Robinson, *loc. cit.*

TEACHER'S ROLE IN TECHNIQUE DEVELOPMENT

Teacher direction of student practice is a key factor in developing the seven basic techniques. In the development of these techniques, the following principles should be considered:[12]

1. Determine techniques that should be learned—provide drills involving the various techniques.
2. Isolate techniques and work on one technique at a time.
3. Students must know the purpose of a given drill.
4. No papers should be graded during the initial skill-building stage.
5. Timings should be used primarily as a learning aid and not to determine amount of work completed for grading purposes.

The use of a technique check list in typewriting classes is controversial. However, most authorities believe that this check list is a basic tool of instruction; and they recommend its use to evaluate *each* student on the basic techniques. Based on the results of this rating, remedial work designed to help students overcome these faults must be planned. Improvement results from *correct* practice, not *quantity* of practice. A technique check list is included as a suggested guide for teachers to use in checking students' techniques. The specific evaluation of each technique is left to the discretion of the teacher.

SUGGESTIONS FOR BEGINNING TYPEWRITING TEACHERS[13]

1. Do not present too many techniques at one time.
2. Do not permit students to type on unlocked keys as alphabetic locations are presented.
3. Do not change machines in beginning typewriting instruction or until after a student can type at least 30 words a minute.
4. Do not permit students to practice at home during the initial stages of typewriting.
5. Do not present keyboard too rapidly. Students should spend approximately 12 days learning the alphabetic keyboard.
6. Do not expect too high a degree of technical competence at first and don't keep drilling on a particular motion to get a high degree of skill.

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[12] Carlos Hayden, "The First Two Weeks of Typewriting," *Balance Sheet,* 34 (March, 1953), 292-295.

[13] Rowe, *loc. cit.*

TECHNIQUE RATING SHEET

	Grade	Student Rating
1. EYES ON COPY		
Eyes always on copy	A	
Eyes not always on copy	B-F	______
Looks up at end of line	______	
Looks up when tabulating, backspacing, or other machine manipulation	______	
Looks up frequently in line of writing	______	
2. KEY STROKING TECHNIQUE		
Strikes keys with quick pull stroke	A	
Deficiences in key stroking	B-F	______
Punches or pushes the keys	______	
Does not return to home row after Striking each key	______	
Allows other fingers to fly up	______	
3. QUIET, MOTIONLESS ARMS AND WRISTS		
Arms and wrists motionless	A	
Waste motion in arms and wrists	B-F	______
Forearm moves with each keystrokes	______	
Wrists bounce with each keystroke	______	
Moves elbow out when striking certain keys	______	
4. CARRIAGE RETURN TECHNIQUE		
Returns carriage properly	A	
Deficiencies in carriage return	B-F	______
Looks up when returning carriage	______	
Returns carriage too hard	______	
Does not use all four fingers	______	
Palm of hand not turned down	______	
Drags carriage across	______	
5. BODY POSTURE		
Body posture excellent	A	
Deficiencies in body posture	B-F	______
Does not sit erect and lean slightly forward from the hips	______	
Both feet not flat on floor	______	
Legs often crossed	______	
Too far from or close to machine	______	
	Composite grade	______

Shell's experiment indicated that the following types of technique difficulties can be isolated and identified through the use of the Diatype:[14]

1. Difficult letter combinations
2. Eyes taken off the copy
3. Key jams
4. Awkward reaches to marks of punctuation
5. Slowness in operating the space bar
6. Slowness in returning the carriage
7. Slowness in operating the shift keys
8. Erratic rhythm

A description of the Diatype will be given in the section that describes teaching aids.

The development of good technique is just as important in advanced typewriting as it is in beginning typewriting. Lloyd[15] attributes the meagerness of skill growth in advanced typewriting to the belief that little or no attention should be given to technique in advanced courses. He believes that the more a student advances, the more important technique becomes. Therefore, the basic techniques must be developed, reconstructed, and improved throughout the learning period.

Lloyd, in a five-part series discusses the typewriting teacher as a technician. A summary of these suggestions is given below.[16]

1. His teaching centers on developing good technique.
2. He watches his students constantly and continuously.
3. He searches his students' papers for technique needs.
4. He surrounds students with reminders of good technique.
5. He uses a technique approach to other learnings.
6. He protects technique from all onslaughts.

THE IDEAL GOAL: *Speed with accuracy as a result of insistence upon proper technique.*

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[14] Walter Shell, "Improving Typewriting Techniques," *Business Education Forum,* 21 (November, 1966), 8-9.

[15] Lloyd, *loc. cit.*

[16] *Ibid.*

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KEYBOARD PRESENTATION

After typewriters were first sold in the United States, keyboard presentation did not exist for approximately fifteen to twenty years. However, keyboard presentation is now a very important part of all typewriting textbooks. Also, the topic is used for many professional articles; and it is never omitted from a book that is devoted to the methods of teaching typewriting. Most typewriting authorities agree that there should be a deliberate introduction to the keyboard.

John Rowe[1] believes that the first typewriting lesson is probably the most important one of the entire typewriting course. He cautions typewriting teachers not to spend too much time the first day on the operative parts of the typewriter. LET STUDENTS TYPE. In the following quotation Lessenberry gives some excellent advice to typewriting teachers:[2]

> Lessons for teaching the letter keyboard should be organized to avoid the "too much too soon" danger that comes from trying to cover the keyboard too quickly and the "too little too late" boredom that comes from introducing the keyboard too slowly. There should be a brisk pace of instruction with planned pauses in *new* learning for tying together the separate learnings into one integrated whole. These pauses in new learning are not pauses in learning, for they permit needed emphasis on speeding up the stroking and building the success pattern.

BLANK VERSUS OPEN KEYBOARDS

One of the first decisions that typewriting teachers should make is whether or not they will use blank or open keyboards in their typewriting classes.

At this time, most of the typewriting authorities and typewriting teachers prefer the open (lettered) keyboards. In 1964-5, Robinson[3] made a nationwide survey so that he would be able to answer questions that are frequently asked about typewriting instruction; he found that 50.95 percent of approximately 5,400 responding schools used open keyboards, and 13.60 percent of them used blank keyboards. However, 35.45 percent had some typewriters with blank keyboards and some with open keyboards.

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[1] John L. Rowe, "The First Day in Teaching Typing," *Business Education World*, 44 (December, 1963), 23-26.

[2] D. D. Lessenberry, "The Rationale for a Widely Used Sequence of Introducing the Letter Keyboard," *Practices and Preferences in Teaching Typewriting*, Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 17-20.

[3] Jerry W. Robinson, "Profile of Typewriting Instruction in American Secondary Schools," *Practices and Preferences in Teaching Typewriting*, Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 1-9.

The success of the sight-approach method of presenting the keyboard depends, to a great extent, upon the teacher direction that is given during this period. Students should be encouraged to look at the keyboard or other devices to locate the new key and to survey the distance and direction that the finger must take to strike the key. By using this sight-approach method, experts believe that students can learn the keyboard more rapidly and efficiently. To prevent students from persistently looking at the keyboard, Rahe gives the following advice:[4]

> Students who persist in watching their fingers should retype keyboard drills that appear in earlier lessons. Requiring such practice is not a punishment but a remedial device to eliminate some of the causes of keyboard watching—insecurity, lack of mastery of preceding lessons and lack of confidence in one's ability to typewrite.

KEYBOARD PRESENTATION

The time recommended for keyboard presentation varies. However, Robinson[5] found in his study that 55.8 percent of the respondents preferred a keyboard introduction period that utilizes from 7-12 lessons. Also, most of the responding teachers seemed to prefer a keyboard introduction pace of 2, 3, or 4 new letters per class period; 17 percent specified 2 a day; 50.4 percent preferred 3; and 25.6 preferred 4.

For the most part, it seems that individuals who are involved in typewriting instruction believe that beginning typewriting should be the same for everyone during the first twelve weeks. Regardless of the final objective, all students must learn basic techniques thoroughly. Therefore, a deliberate presentation of the keyboard is necessary for all typewriting students.

Much repetition and directed drill develops quick, snap stroking. Therefore, each day all the keys that have been previously introduced should be reviewed before the new keys are presented. In Robinson's[6] survey, 56.3 of the respondents preferred to have 2 or 3 lessons of new-key presentation followed by a review lesson in which no new keys were presented.

METHODS OF KEYBOARD PRESENTATION

In the literature, several approaches are given for presentation of the typewriting keyboard. Some of the approaches are (1) vertical, (2) horizontal, (3) skip around, (4) eclectic, and (5) whole. In this section, only two approaches will be presented: (1) skip around and (2) vertical.

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[4] Harves Rahe. "Implications of Research in Typewriting," *National Business Education Quarterly,* 29 (March, 1961), 8-12.

[5] Robinson, *op. cit.,* p. 4.

[6] *Ibid.,* p. 5.

Vertical (First-Finger-First). The Vertical Plan for Keyboard Presentation presents the home row first. Then, the other keys are introduced finger by finger from the index finger to the little fingers.

Robinson makes the following comment about this plan:[7]

> Although none of the widely used typewriting books now follows the plan, 28.7 percent of the responding teachers stated a preference for the first-finger-first sequence of keyboard presentation.
>
> *Advantages.* Presents the most facile reaches first and delays the more difficult reaches until the student has developed at least a modicum of basic skill.
>
> *Disadvantages.* (1) The crowding of most of the difficult reaches into a limited number of lessons; (2) the development of a tendency to err on letters typed by the same fingers, opposite hands; (3) the forcing of fine discriminations between vertically and horizontally adjacent keys and between adjacent fingers too early; and (4) the need to use many one-hand word patterns which are difficult to type before unskilled fingers are able to execute even easy reaches with facility.

Skip-Around. This plan of keyboard presentation is the oldest and most traditional of all plans. In Robinson's[8] study, 61.3 percent of the respondents favored this method. The home-row keys are presented first. Then 2 or 3 keys are presented at a time.

After nearly 40 years of widespread use, the Skip-Around Plan has no reported disadvantage. Therefore, Robinson cites the following advantages:[9]

1. Early use of meaningful sentence material for practice
2. Use of easy alternate-hand words and phrases for initiating effective stroking patterns
3. Avoidance of both the spatial and temporal grouping of difficult reaches by spreading them over several lessons
4. Avoidance of harmful pairings of keys introduced (*i* and *e, r* and *u,* etc.)

Hosler[10] says that the only aspect of keyboard presentation that is universally used today is that of presenting the home row keys first. He states that the order after the home row varies.

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[7] *Ibid.*

[8] *Ibid.*

[9] *Ibid.*

[10] Russell J. Hosler, "Methods of Teaching the Alphabetic Keyboard," *Methods of Teaching Typewriting,* Yearbook of the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1965), pp. 18-31.

As previously pointed out, some typewriting teachers spend a maximum of 12 periods presenting the keyboard. Rowe[11] says that when the keyboard is presented too rapidly, students will not feel secure about key locations; and as a result, they will make hesitant, push-down strokes. Therefore, *the main emphasis in beginning typewriting should be on the development of correct typewriting techniques.* The emphasis on speed and accuracy should take place *after* the keyboard-presentation stage.

After the alphabetic keyboard has been presented, some skill-building periods should follow before presentation of numbers. Typewriting authorities differ about the number of periods that should be devoted to skill building; the number of periods varies from 3 to 10.

Liguori says that operationally, beginning typewriting students should evidence at least the following behavior patterns by the time the alphabetic keyboard has been presented:[12]

1. A reasonable degree of automatization of reach-stroke patterns
2. Evidence of the sound development of fundamental techniques
3. Manipulative facility—uninterrupted fluent and tension-free stroking. In addition, other factors such as posture, work habits, diligence, attitudes, etc.

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[11] John L. Rowe, "The Development of Correct Touch," *Business Education World,* 44 (October, 1963), 29-32, 38.

[12] Frank E. Liguori, "Presenting the Keyboard," *Business Education Forum,* 17 (May, 1963), 21, 24.

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NUMBERS AND SYMBOLS

Importance of Number-Symbol Proficiency

Too few teachers are aware of the significance of the impact of the changes that have taken place in business and government offices in typewriting skill. As Rowe[1] states, "One of the most significant developments is occurring in number and symbol writing. The top row has been referred to as the 'vocational' row because the language of numbers and symbols is the language of business." He further points out that this trend is caused by the "definite change that is occurring in typescript."[2] In this connection, Crawford[3] also says:

> Both government and business run on paper and thrive on statistical data: contract numbers, order numbers, voucher numbers, form numbers, invoice numbers, account numbers, policy numbers, part numbers, stock numbers, check numbers, and the like. Almost everything that can be seen and touched in factory or office has had (and may still bear) a number.

It should be obvious, therefore, that vocational proficiency in typing numbers and symbols is a prerequisite to employability. Probably deficiency in top-row performance on the part of high school graduates is the greatest weakness in vocational typewriting today. What is the cause? The answer given by Lessenberry[4] seems most appropriate:

> The least liked, least practiced, and least mastered section of the keyboard is undoubtedly the number-symbol (top-row) keys. Students have not developed the speed and accuracy in typing numbers and symbols that teachers expect and business demands.

Some of the causes which have contributed to this condition are as follows: (1) Number of new keys presented in a lesson, (2) lack of skill and knowledge of teaching methodology on the part of the teacher, (3) lack of confidence on the part of teacher and students that vocational skill can be accomplished, and (4) inadequate daily drill throughout the typewriting course.

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[1] John L. Rowe, "How to Meet Changing Needs in Typewriting," *Business Education World,* 44 (September, 1963), pp. 9-11.

[2] *Ibid.*

[3] T. James Crawford, "Building Top-Row Proficiency," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 31.

[4] D. D. Lessenberry, "A Comparison of Patterns of Figure-Symbol Introduction," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 28.

INTRODUCTION OF NUMBERS AND SYMBOLS

When to Introduce Numbers and Symbols

An important factor affecting speed and learning and ultimate standards achieved is the appropriate time of introducing the top row. In recent years, there seems to be general agreement that some time should elapse between completion of the presentation of the alphabetic keyboard and the introduction of the top row in order to develop a certain amount of mastery or automatization of the alphabetic keyboard.

In this connection, Rowe[5] says, "Delay the presentation of the top-row keys until the students have acquired a reasonable degree of security (sense of touch) with the alphabetic keyboard." More specifically, Rowe[6] says, "The student should be able to type straight-copy material without looking at the keys at the rate of 15 to 20 words per minute. The degree of skill would imply previous instruction from three to four weeks."

Lessenberry, Crawford, and Erickson[7] recommend postponing the introduction of numbers until a certain degree of skill has been reached: "A reasonable rate to expect for 75 percent of the students is 20 wam or more on three-minute writings and 27 wam or more on one-minute writings."

Robinson[8] says that, "Number and skill competency seems to develop faster (without a corresponding loss in straight-copy control) if there is a two or three weeks' separation of alphabetic introduction and number-symbol introduction."

Rate of Presentation of Numbers and Symbols

Although there is not unanimity of opinion on the subject, it is generally agreed that the number and symbol keys should be presented fairly slowly so that there will be time for adequate practice on each new key before the next one is introduced. Lessenberry[9] cites a teacher survey by Robinson which indicates that, ". . . 53.1 percent of the questionnaire respondents preferred to present only two new *number* keys per lesson, while over 50 percent of the same respondents preferred to present three *letter* keys per lesson."

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[5] John L. Rowe, "The Development of Correct Touch," *Business Education World*, 44 (October, 1963), p. 32.

[6] John L. Rowe, "Principles in the Development of Top-Row Proficiency," Mimeographed Materials.

[7] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting*, (Cincinnati: South-Western Publishing Company, 1960), p. 183.

[8] Jerry W. Robinson, "Some Things We Have Learned from Teaching Typewriting," *American Businesss Education*, 17 (October, 1960), 40-44.

[9] Lessenberry, *op. cit.*, p. 29.

Rowe[10] advocates introducing the numbers and symbols even more slowly. He says:

> Introduce the top row sparingly—not more than one a day. In presenting each new reach on the "new keyboard," devote 10 to 15 minutes for mastery of the reach. The remaining time of each period should be spent in further refining the alphabetic keyboard, particularly the development of straight-copy skill.

Although it has been considered standard procedure to delay introduction of the symbol keys until after mastery of the number keys, Lessenberry[11] says that a new plan, called the "One-Day-Delay" plan, "gives promise of raising the level of top-row proficiency." This plan embodies teaching one new number key in a lesson and its shifted symbol in the lesson immediately following. Thus a pace of two figure-symbol keys per lesson is maintained.

Order of Presentation of Numbers and Symbols

Based on the research evidence available, which is somewhat limited, there is no significant difference between the results obtained by presenting the number keys contiguously as opposed to the noncontiguous method.[12]

On the other hand, it has been established through research that noncontiguous number combinations occur much more frequently in business correspondence than contiguous combinations. For instance, the Grill[13] study reveals that, "Noncontiguous number patterns comprised 65.8% of the total diagraphs; while contiguous number diagraphs accounted for 19.4% and double number patterns accounted for 14.8%."

Considering the findings from both types of investigations presented above, the evidence seems to support the skip-around method of presenting the number and symbol keys. However the findings also indicate that an appropriate amount of practice should be given to contiguous and double-number patterns.

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[10] Rowe, *loc. cit.*

[11] *Ibid.*

[12] Ellis John Jones, *An Experimental Analysis of Two Spatial Patterns in the Mastery of the Number Key Reaches on Non-Electric Typewriters* (Doctoral dissertation, University of North Dakota, 1965), p. 149.

[13] George Philip Grill, *An Analysis of Digit and Symbol Patterns in Business Communications as a Factor in Reappraising Course Content Relative to Selected Learning Processes in Typewriting Methodology* (Doctoral dissertation, University of North Dakota, 1965), pp. 199-200.

SUGGESTIONS FOR TEACHING NUMBERS AND SYMBOLS

The following principles are generally accepted by authorities in the teaching of typewriting, and it is recommended that the teacher use them in teaching the numbers and symbols:

1. *"Possess a conviction that the top row can be easily mastered by touch."*[14] Impart this confidence to the students. Too frequently, both teachers and students do not believe, and consequently accept the fact, that vocational proficiency cannot be achieved in typing figures and symbols. As Crawford[15] states, "The attitude of the learner influences to a great extent the amount of learning that takes place."

2. *"Begin instruction in the typing of numbers and symbols early and continue it throughout the entire learning period, from the first semester to the last."*[16] The teacher cannot assume that exercise material in the text will contain enough built-in number and symbol practice. On the other hand, as Crawford[17] states, "Students should be required to type copy containing all the numbers on the keyboard as a part of each day's lesson." On this point, Frisch[18] says, "Three to five minutes of concentrated daily practice with the number keys early in the basic training would enable every student to typewrite numbers at the same rate as straight-word copy." Daily drills should be carefully chosen to increase number and symbol skill throughout the typewriting instructional program.

3. *"De-emphasize the 'interceding character' when initially presenting top-row locations."*[19] Traditionally, it has been the practice to use the intervening key when introducing a number key, such as the drill ju7j when introducing the 7, for instance. This violates the principle of "precise practice" and may actually be harmful when the student must reach directly to the top row from the home row in application practice.

4. *"Employ multiple senses in the development of top-row skill — sight, sound, and satisfaction."*[20] In presenting a new key, require the student to establish the new location by initially looking at the key. After introductory acquaintance, the student should refrain from looking. Develop in the student an understanding of the importance of the

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[14] Rowe, *loc. cit.*

[15] Crawford, *op. cit.*, p. 33.

[16] *Ibid.*

[17] *Ibid.*

[18] Vern A. Frisch, "Clerical Typewriting," *The Clerical Program in Business Education,* Yearbook of the American Business Education Association, (Somerville, New Jersey: Somerset Press, 1959), pp. 176-196.

[19] John Rowe, Mimeographed Materials.

[20] *Ibid.*

same ballistic stroke in the typing of numbers and symbols as in typing the alphabet. A sharp, quick stroke has one sound; a push or mash stroke has a double sound. Use praise and encouragement in the teaching of numbers and symbols to develop satisfaction and confidence.

5. *Gradually mix the copy to provide realistic practice on numbers and symbols.* Featheringham and Mitchell[21] state that "The student should be able to type 100 digits per minute (20 words per minute) before mixing numbers and letter typing. When the class has reached this level of proficiency, then gradually mix numbers and words such as dates, streets, addresses, and cities and states with zip codes." Application number typing when introduced too early is likely to result in the students' looking at the keys.

6. *Teach digit perception patterns when reading copy in typewriting.*[22] This process should be done in progressive steps.

Step 1. Visualize single numbers as wholes. Tabulation practice.

2 7 1 5 9 3 6 4

Step 2. Visualize two digits as a whole. Mentally pronounce the digits when typing.

74 30 62 47 93 16 38 85

Step 3. Visualize three digits as a whole. Mentally pronounce.

174 385 729 364 620 481 739 150

Step 4. Visualize four digits as a whole. See two digits at a time; then combine them into a whole.

4882 1057 2628 3004 4051 7388 5691 8236

7. *Double-check for accuracy; proofread cooperatively.*[23] Number errors are much more serious than errors in regular copy. Furthermore, number errors are difficult to detect without comparison with the original copy. Therefore, student cooperation in proofreading is valuable practice in typing copy loaded with numbers. Rowe[24] recommends, "In advanced typewriting, allocate a double penalty for any number error not located, because this type of error is hidden and one must refer to another source to check it."

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[21] Richard D. Featheringham and William M. Mitchell, "Methods of Teaching Numbers and Symbols," *Methods of Teaching Typewriting*, Yearbook of the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1965), pp. 32-41.

[22] Rowe, *loc. cit.*

[23] *Ibid.*

[24] John L. Rowe, "Writing Numbers and Symbols," *Business Education World*, 44 (November, 1963), 30-33.

8. *Use chalkboard effectively.* Write number drills on the board for daily warmup or skill-building practice. Choose appropriate drills from the wealth of materials available in texts and professional literature.

9. *Abandon (gradually) home-row position for vocational top-row skill.*[25] Statistical typists and others who type predominantly number copy often abandon the home-row base position and type by the "third-row" method or the pipe-organ method. Perhaps the students should be acquainted with these methods, but it is doubtful if they should be required to acquire proficiency in them unless the school attempts to prepare statistical typists.

The Third-Row Method requires moving both hands up to the third row as a "home" position. The "we-23" drills, illustrated below, may be used in introducing this method.

we	23	to	59	it	85
up	70	two	529	wet	235
you	697	tie	583	put	075
yet	635	out	975	top	590

The Pipe-Organ Method involves moving the left hand up to the top row in 2-3-4-5 position. The right hand remains on the traditional home row because it must travel to the bottom row to strike the comma and period as well as shift for the $, #, and % symbols.

The findings in an experimental study in the Los Angeles area indicated that neither the pipe-organ nor the third-row method had a particular advantage over the home-row reach method unless the copy was composed predominantly of numbers.[26]

10. *Develop standards of achievement in d.p.m. (digits per minute).* Required standards motivate students to maximum achievement and contribute to the achievement of vocational proficiency. Featheringham and Miller[27] state that:

> Straight number typing timed writings should be conducted throughout the typing course so that the digits per minute rate is comparable to the student's base rate in straight-copy mixed with numbers or copy mixed with numbers. If the student reaches a rate of 35 words per minute on alphabetic copy, his number per minute rate should be 150-175. *For vocational proficiency, students reach 200 digits per minute with no more than three errors.*

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[25] Rowe, *loc. cit.*

[26] Lawrence W. Erickson, "Teaching the Number Row," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 27.

[27] Featheringham and Mitchell, *op. cit.*, p. 34.

NUMBER AND SYMBOL DRILLS

In typewriting, teaching methodology is implemented directly by drills designed to build specific skills. Many such drills are available; however, space permits mentioning only a few selected drills for illustrative purposes.

Classification of Number-Symbol Drills

Crawford [28] classifies number-symbol drills into three types:

1. *Oral Drill,* given audibly by dictation, the chief purpose being to obtain a quick, direct response.

2. *Oral-Visual Drills,* in which teacher dictates while the students type from printed copy. Their purpose is to speed up sluggish, hesitant typists or to slow down erratic typists who need some external controls to improve accuracy.

3. *Visual Drills,* in which the student types from printed copy without teacher pacing. At least a portion of the drill period should provide opportunity for the student to obtain some practice of this type.

Specific Number-Symbol Drills

The examples given below may be used in either or all of the three ways described above, and most of them may be used either for initial learning, recall and reinforcement, or skill-building purposes.

1. *Basic-Reach Drills,* for initial learning or recall

7j 3d 8k 2s 91 4f 0; 5f 6j
&j #d 'k "s (1 $f); %f —j

2. *Location Drills,* for blackboard presentation. Starting with the first drill, the teacher adds an additional digit each time.

11, 44, 14, 41,
111, 144, 114, 141,
4,111, 4,144, 4,114, 4,141,
11, 44, 14, 41, 77, 17, 71, 47, 74
111, 144, 114, 141, 177, 117, 171, 147, 174
7,111, 7,144, 7,114, 7,141, 7,177, 7,117, 7,171, 7,147, 7,174

3. *Dictation Check Drills,* dictated by the teacher. Then the teacher reads aloud for checking purposes.

2375164926 3820561748 4021583920

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[28] Crawford, *loc. cit.*

4. *Competitive Number and Symbol Drills,* in which students stand up or raise their hands as they finish.

a. Type from 1 to 50, using the comma after each number.
b. Type to 50 by 2: 2, 4, 6, 8, 10, etc.
c. Type to 100 by 5: 5, 10, 15, 20, 25, 30, 35, etc.
d. Type the numbers, including the $ sign, from 1 to 20.
e. Same as "d" but using the # sign.

5. *Mixed Copy Number Drills,* involving phrases, sentences, or paragraphs.

a. Dates and addresses:
January 18, 1967, March 5, 1968, October 23, 1959, April 14,
144 Pearl Street, Dayton, Ohio 32607; Topeka, Kansas 62713
2946 Glenn Street

b. Sentences:
Ray has 17 pens, 34 keys, 56 coins, and 29 stamps.
The bus leaves at 9:55 a.m., 2:38 p.m., and 6:47 p.m.
The sum of 61, 75, 29, 48, and 17 is 230.

6. Tabulation Drills, for skill building and tabulation practice.

the 375 and 284 his 920 for 637
may 484 was 931 how 573 new 128

7. *Speed-Spurt Timings,* for 30-second or 1-minute timings. Students determine rates by referring to word count shown by numbers above copy.

1	2	3	4	5	6	7	8	9	10
2971	6391	4842	5010	7267	1483	3047	8210	5659	1384

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DEVELOPMENT OF SPEED

Until approximately thirty years ago, attention was centered on the strict "accuracy" approach to beginning typewriting. Then, this period was followed by the speed approach. However, the trend is toward a technique-emphasis approach with little emphasis on speed or accuracy development until correct typewriting techniques have been developed.[1]

The technique approach, which precedes this section, is built upon the premise that *real speed* is built through the use of correct techniques, which will inevitably lead to the development of speed with accuracy.

If both teachers and students will push for speed, most students can learn to type *at least* fifty words a minute during two years of typewriting in high school. However, there must be a determined effort to reach an established goal. There is no substitute for intensive and extensive practice that is purposeful and that is properly conducted.

Therefore, teachers must know and be able to recognize the factors that constitute a skill; they must be able to recognize faulty techniques and habits that are developed by students. Most important, teachers should be familiar with the teaching-learning activities that are recognized as being the most effective ones for developing the component factors of the skill; that is, typewriting teachers must know when to emphasize speed at the expense of accuracy.

Crawford believes that typewriting speed is the product of the following basic elements:[2]

1. Reasonable finger dexterity
2. Concentrated reading skill
3. Persistent, intensive practice
4. Enthusiastic interest in continued growth
5. Composure with self-confidence

PRINCIPLES OF SPEED DEVELOPMENT[3]

1. *Purposeful repetition is essential to the development of typewriting skill.* Repetitive drill exercises are needed to develop specific stroking speed movements or the refinement of specific techniques.

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[1] Harves Rahe, "Implications of Research in Typewriting," *National Business Education Quarterly*, 29 (March, 1961), 8-12.

[2] T. James Crawford, "A Direct Approach to Speed Building," *Practices and Preferences in Teaching Typewriting*, Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 51-52.

[3] Dale D. Atwood, "The Development of Speed in Typewriting," *Methods of Teaching Typewriting*, Yearbook of the Eastern Business Teachers Association, 38 (Somerville, New Jersey: Somerset Press, Inc., 1965), pp. 42-59.

2. *High straight-copy speed is necessary for the development of an optimum production skill.* One cannot apply that which he does not have. Therefore, the development of straight-copy skill must utilize a considerable portion of the first semester of beginning typewriting.
3. *Application period is one of the most crucial periods in speed development.* In the application of straight-copy skills to production activities, it is paramount that a practice period be provided for clarifying and establishing basic typewriting patterns for each type of problem.
4. *Speed development must include opportunities for typing many different kinds of copy material.*
5. *A variety of methods should be employed in speed development.*
6. *Accuracy must follow concurrently the development of speed in typewriting.* Higher speed rates can be accomplished by improving accuracy.

IMPROVEMENT OF TECHNIQUE

Stroking the keys. Probably the one most important single factor affecting the rate and extent of speed development is the way students learn to strike the keys. When students develop incorrect techniques, they will reach a plateau beyond which they can never go unless the faulty techniques are corrected. Therefore, correct techniques should be emphasized at all times.

From the beginning of typewriting, teachers should require rapid responses. Motions involved in correct techniques are not slow motions. Students should progress from the letter-level response to the combination response. At first, two or three letters should be automatized; then, many short words become automatized. The sole objective should be faster stroking without reference to accuracy, when refinement of stroking is emphasized. Willins points out the importance of stroking in the following statement:[4]

> The basic principle of sustained speed with accuracy is uninterrupted continuity of stroking. Stroking continuity can be achieved only when stroking control is well developed. Stroking control is the ability to tap the keys with precision and dexterity. Stroking control is dependent upon building strength and stretch—or key facility—into the fingers.

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[4] Stella Willins, "Championship Techniques," *Journal of Business Education,* 31 (February, 1956), 206-209.

Good results will not be obtained unless the teacher demonstrates the method properly and follows through with daily observation and individual demonstration. *He must be sure that all students have mastered correct key stroking.* Key stroking is such an important phase of typewriting instruction that teachers must be constantly alert to the possibility and tendency of students to lapse into bad habits in all typewriting classes, both beginning and advanced.

Other Techniques. (1) *Position.* Proper position at the machine is essential to proper speed development. The student should sit squarely in front of the machine; his body should not be too close to nor too far from the machine. The height of the typewriter and the chair should be so adjusted that the arms slant upward slightly. The fingers should be properly curved and the fingernails should be kept short. The feet should be kept flat on the floor. (2) *Eliminate Waste Motion.* It is essential that the student be taught to eliminate all useless motion of the forearms and wrists; each finger must make its reaches independent of the others. Waste motion should be eliminated in the operation of all the machine controls as well as in the handling of materials. (3) *Eyes on Copy.* Glancing back and forth from the machine to the copy hinders speed development. The student must be taught to keep his eyes "fastened" to the copy, without looking up at the ends of lines or looking up at the slightest suspicion of having made an error. (4) *Reading Habits.* Improper reading habits can retard speed development. Deficiencies in reading ability, reading too fast, and the like, are factors which the teacher should be able to detect and improve.

Operating Controls. Improvement of skill in the use of all operating controls is an important phase of speed development. Proficiency in the use of the carriage return lever, the space bar, the tabulator key, the shift keys, and the margin release is particularly important. Here are some suggestions for increasing skill in the use of these various keys.

Carriage-Return Drill. A good drill consists of typing the last few words in a line, returning the carriage as quickly as possible, and typing one or two words on the next line. The tabulator mechanism should be clear of all stops and one stop should be set ten or fifteen space from the right margin. This drill gives practice in the use of the tabulator also. When completed, this drill will look like this:

```
done quickly                              this can be
done quickly                              this can be
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Calling-the-Throw Drill. First, the teacher should demonstrate the correct method of throwing the carriage. Then, the teacher should tell the students that he is going to call "throw" before they finish writing each line. The students should type as far as possible before the "throw" is called; then, they should start the line again. A good sentence for this type of drill is as follows:

Be certain you keep your eyes on the copy when returning the carriage.

Space-Bar Drill. Teacher should review the proper technique in stroking the space bar. Students should be cautioned to avoid excessive wrist action and lingering on the space bar. Students should be instructed to hit the space bar with the thumb crisply but lightly, with a slightly outward motion of the thumb. The following are samples of typical space-bar drills:

a b c d e f g h i j k l m n o p q r s t u v w x y z
At on as so to am of it me do an go is he no be in we if

Shift-Key Drill. Teacher should review correct techniques in manipulating the shift key. Faulty methods that result in "raised" capitals should be described. Students should do remedial practice on such lines as the following, writing each one, two or three times:

aAbB cCdD eEfF gGhH iIjJ kKlL mMnN oOpP qQrR sStT
Adam Ben Carl Don Eva Frank George Hal Irene Jane

Tabulator- and Back-Space Drill. First, there should be a review of the proper method of stroking these keys by "touch." All tab stops should be cleared and new ones should be set every fifteen spaces. Then, students should practice the following lines by typing each phrase at the tab stop. Next, they should practice the exercise, back-spacing once at each tab stop before typing the phrase.

that is	in this	for the	when the	so that
has been	he will	so that	for this	in the
to make	about the	there is	and the	and have

Margin-Release Drill. Teacher should review proper reach to the release key. Then, students should be allowed to preview the drill sentences. After this step, the teacher should give a one-minute test on the two sentences and the students should compute the speed. For this exercise, a 70-space line should be used. Next, the writing line should be reduced to 65 spaces. Then the teacher should give another one-minute writing and have the students compute their speed. The students should use the margin release and finish each line. Students should try to equal their speed made on the 70-space line. Illustrations:

2

The drill is designed to help you avoid hesitating when the keys lock.

Depress the margin-release key and complete the word without stopping.

IMPROVEMENT OF FINGER DEXTERITY

Anything that will improve the facility of the fingers in making the various reaches on the keyboard will improve speed. The speed of making any particular reach is affected by the reach made before and the one made after the reach in question, especially if it is made by the same finger. Therefore, the sequence of the letters in a word governs the difficulty, and therefore the speed of writing each word. Thus, it becomes evident that rhythm cannot be considered as staccato or metronomic stroking of the keys. If such rhythm is forced upon the student, his speed is limited to the speed at which he can make the most difficult reaches. Rhythm, therefore, may be described as continuity of writing characterized by "waves" — the easier reaches being made more swiftly than the more difficult ones.

Drills that result in speeding up the responses to difficult letter sequences will, therefore, tend to smooth out the rhythm and develop speed. The student can develop his own lists of troublesome words for daily practice. Lists of words containing difficult sequences and sentences containing such words may be found in many types of drills. The more commonly used types are called left- and right-hand word drills, double-letter drills, control drills, etc.

Also, many excellent speed-building drills can be used to best advantage as class or group activities under the close supervision of the teacher. Some of these drills are acceleration sentences, speed paragraphs, speed spurt drills, etc. Rahe[5] says that students who typewrite speed sentences, call-the-throw drills for speed, selected-goal and guided writings for speed and other specially devised speed-building drills seem to increase their speed more than do students who simply typewrite "all-purpose" exercises and practical typewriting problems, but no specific speed-building drills.

METHODS OF INCREASING SPEED

A Direct Approach to Speed Building[6]

Crawford believes that inextricably woven through any program of speed building should be an awareness on the part of both teacher and student that the five basic elements that are necessary for speed development must be constantly stressed and continuously refined if keystroking power is to be increased.

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[5] Rahe, *loc. cit.*
[6] Crawford, *loc. cit.*

Efforts to build speed may be channeled through two successfully proven plans. The first, descriptively labelled an indirect approach, incorporates activities, procedures, and materials especially designed to produce refinement in the fundamental manipulative techniques, pursuing the belief that, as the fundamental techniques are improved, higher stroking skill automatically follows. The second plan, titled a *direct approach,* structures its program around the intensive use of interval timing procedures requiring repeated pressure attempts to force fingering patterns to higher performance levels. Proceeding on the assumption that meaningful repetition stimulated by frequent timings creates exceptional interest and incentive resulting in impressive stroking gains, the direct approach launches a frontal assault on the intricate problem of increasing stroking speed.

The direct approach (1) follows logical steps in meaningful sequence, (2) incorporates a variety of interest-packed, highly motivating activities, (3) utilizes comprehensive rather than restrictive subject matter, (4) adapts itself to effective use with all kinds of typewriters, and (5) is particularly well suited to wide ranges in individual differences, taking all students by planned progression from their former reduced speeds to appreciably higher stroking levels.

Step 1. Determine Present Stroking Skill. Growth in stroking speed should be sought from the point at which the typist is currently performing rather than from some previously established record. To determine present stroking rates, administer three 1-minute sentence writings and three 1-minute paragraph writings; then find the average of each set. Normally, sentence-writing averages will be 3 to 7 words higher than the averages for the paragraph writings. Use the average figures, then, as the basis for selecting the new speed goals.

Step 2. Select Challenging New Speed Goals. Choosing new stroking rates may be done by either a conservative method or a liberal method. The conservative method establishes goals 4 to 8 words above the former rates while the liberal, more extreme, method fixes the new goals at 8 to 16 words above the lower speeds. (It should be noted here that it is generally recognized that an 8- to 10-word increase in speed is necessary before a change in the method of stroking is forced.) Which of the two methods is chosen should depend, largely, upon the temperament of the typists involved, for a method which has proved to be successful with one class may prove quite unfruitful with another.

Step 3. Employ Special Devices and Procedures Purposely Designed for Speed Building. Some of the most successfully used devices are (a) paced sentence writings; (b) paced paragraph writings, some with equal-length lines and others with varied-length lines; (c) carriage-return drills; (d) paragraphs for guided writings

—both for group and individual pacings; (e) paragraphs for progression writing; (f) stencil-position drills; and (g) memorized-sentence or paragraph writings.

Step 4. Provide Systematic 'Drop Back' Writings for Relaxation and Control. Any attempt to build speed should be accompanied with periodic opportunities for reduced-speed writing. By such 'depressurized' experiences students often attain their best levels of stroking while, at the same time, demonstrating their highest degree of control. The drop-back writing procedure has proved to be a most profitable one in developing speed typists and should be incorporated into all drives for increasing stroking skill.

Step 5. Require Speed Writings of New as Well as Practiced Copy. A sound speed-building program should include practice on other than restricted copy. The true measure of a typist's speed lies in his ability to type comprehensive, new material rather than limited copy typed repeatedly. Therefore, a good speed-building program should include a variety of practice copy with difficult as well as easy content.

Step 6. Administer Timed Writings for Sustained Periods of Time. When new stroking rates have been acquired for short-interval timings, typists then should be required to extend their speeds to at least five-minute writings.

The *direct approach* to speed building is particularly well suited to all grade levels and is most adaptable to wide ranges in student ability.

USE OF TIMED WRITINGS

Timed writings are effective devices to achieve high standards not only on straight-copy speed but also on production work. If teachers use them correctly, they are also excellent motivating devices.

Reigel thinks that timed writings have the following inherent evaluative characteristics:[7]

1. The timed writings provide a standard measurement for typing power which varies only slightly from one administration to another and from one school to another.
2. Timed writings provide an excellent, yet simple, technique which students can readily understand and appreciate.
3. Timed writings provide an excellent source of comparison to various production rates and goals.
4. Timed writings provide an excellent situation of typing under pressure.

At this time, most typewriting authorities seem to favor short timed writings, one- and three-minute timed writings for developing typewriting speed. They believe that the long writings, ten- and fifteen-minute writings are used to measure speed, not to develop it. Rowe[8] believes that although it may be many years before the recommended practice takes effect in typewriting classrooms, the 3-minute timed writings are probably the most effective measure of skill, even more than the 5-minute writing.

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[7] Charles E. Reigel, "The Timed Writing—Either-Or," *Balance Sheet,* 41 (December, 1959), 160-161.

Because performance is the only true measure of speed, straight-copy speed cannot be separated from application activities. Therefore, the development of a basic typewriting skill must be stressed in *all* typewriting classes.[9]

THE "THEORY OF THREE"

Another method that is used for building speed is the "Theory of Three." The "three" refers to the amount of repetition that is necessary to assure growth and development, as well as fluency, in typewriting so that maximum rates can be attained. Rowe describes this theory by using a 3-minute timed writing in a typical typewriting class:[10]

> The teacher selects a 3-minute timing to be used for the skill building activity on a particular day. From this timing he selects six or seven words that have a somewhat involved typewriting construction because they contain awkward reaches. . . . He will print each word on the chalkboard and ask the student to type each word first slowly, for control, then a second time and perhaps a third time at increasingly higher speeds. This is done for the words selected for preview from the 3-minute timing.
>
> He will then select four or five phrases from the context of the writing and print these on the board. As each phrase appears on the chalkboard, the student is asked to type it first for control, then to type it a second and third time at faster rates. This procedure is followed for all the phrases previewed.
>
> The student will then take three timed writings on the selection. He is then instructed that the only timed writing to be recorded will be the longest one that is within the error tolerance for a particular level of typing. For example, during the second semester of beginning typewriting, the students are attempting to increase their rates on 3-minute timings with no more than two errors for the three minutes. On the completion of the first writing the student proofreads his copy for errors. He does not calculate his rate but corrects the errors by typing each word incorrectly typed until he has typed it three times in a row without error. This procedure is usually followed for students typing under 40 wam.

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[8] John L. Rowe, "Development of Speed in Typing," *Businesss Education World,* 44 (February, 1964), 29-33.

[9] *Ibid.*

[10] *Ibid.*

> If a student types over 40 wam, he is asked to place the incorrectly typed word in a phrase setting by typing the word preceding the error, the word containing the error and the word following the error. Since he is a reasonably fast typist, he can do this amount of repetitive practice with ease. Because the error is placed in a natural setting, he will be practicing contextual material rather than isolated words. His goal for the phrases should be similar to the one set for the repetitive typing of single words—three phrases in a row without an error.
>
> Without figuring his score for the first timed writing, the student takes a second timed writing on the same copy. When three minutes are up, he will again proofread and follow the same corrective procedures without determining his score. If, on his first timed writing, he failed to type with two errors, or less, he will obviously work for control; but if he had only two errors on the writing, it is possible for him to have a paper to be turned in, because he has met the error tolerance. He will then feel free to let go and type at a higher rate on the next timed writing. It is sometimes surprising to find that, without the pressure of having to turn in a paper for each writing, students will achieve startling results in terms of improved speed and accuracy.
>
> After correcting his errors on the second timed writing, and without determining his score, the student will take the third timed writing. If he has met the error tolerance, he can expand and let go to achieve new heights in speed. If he has not met the error tolerance, he will of course, continue to work for control. At the end of the third timing, he will check his errors but will not correct them. Then, by glancing at his papers, he can tell which of the writings was the longest with two errors or less. He will now figure the score for that timed writing and submit it to the teacher for recording.
>
> The 'Theory of Three' procedure promotes growth and improvement. Each student in typewriting has a specific goal. One may be working for control, whereas another may be working for speed. This procedure is probably best suited for lower levels of typewriting, particularly first year typewriting; and it is especially advantageous for the lower half of the class. Your outstanding students, particularly in second-year classes, might select new copy for each timed writing. The 'Theory of Three' will, however, serve the needs of most students in beginning typewriting.

At this time most typewriting authorities and typewriting teachers believe that both speed and accuracy will be greater if correct techniques are first developed. Therefore, typewriting teachers must encourage students to make fewer, faster, and easier motions, which will result in fast accurate typing. Rahe makes the following statement about development of speed:[11]

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[11] Rahe, *loc. cit.*

To gain speed, the teacher and the students must "push for speed." Usually, speed does not develop unless there is a determined effort made to gain it. There is no substitute for intensive and extensive practice that is purposeful and that is properly conducted. Teachers may help students increase their typewriting speeds by pacing them, by praising and encouraging them, by keeping them informed of their progress, by recognizing their successes, and by motivating them in other ways.

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DEVELOPMENT OF ACCURACY

THE MEANING OF ACCURACY

The traditional approach to typewriting instruction is to emphasize accuracy of copy first. This approach is based on the concept that it is easier to speed up stroking than it is to correct errors. Even though the problem of accuracy seems to give typewriting teachers the most concern, there is no agreement as to the meaning of "accuracy." Some typewriting authorities prefer to use the word "control," which according to Webster, means to check or regulate; to keep within limits, or speed; to exercise directing, guiding, or restraining power over.

The Cranks give the following principles that are basic to the development of accurate typewriting:[1]

1. A student must understand the need for accurate typing.
2. A student must gain insight into the accuracy-developing process.
3. All practice must be purposeful.
4. The application of skills and principles must be consistent.
5. The teachers and students must put forth persistent effort.

METHODS OF DEVELOPING ACCURACY

The first step in learning causes of errors is to identify the major kinds of errors. Many typewriting authorities classify typewriting errors according to the following broad categories: (1) Errors to be ignored; (2) Errors to be studied; (3) Errors to be used as guides; and (4) Errors to be erased and corrected. This classification is used by Russon and Wanous. Therefore, most of the content for this first section will be adapted from their typewriting methods book, *Philosophy and Psychology of Teaching Typewriting*:[2]

1. *Errors That May Be Ignored.* These authors list and discuss four typing situations in which errors may be ignored.

   a. *Errors Made on Typewriting Drills.* The general purpose of typewriting drills is to modify typewriting behavior. Therefore, each drill has a specific purpose inherent in its design. When these drills are used in typewriting practice, the students' entire attention should be on the purpose of the drill; and the errors should be ignored.

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[1] Doris H. Crank and Floyd L. Crank, "Building Control in Typewriting," *Business Education Forum,* 14 (December, 1959), 21-22.

[2] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting,* (Cincinnati: South-Western Publishing Company, 1960), pp. 352-358.

b. ***Errors Made on First Practice of Problem Material.*** When the student is taking up some new typewriting application for the first time, the purpose is to acquaint the student with a new arrangement of typed material; the arrangement is the important result. Therefore, the errors should be disregarded.

c. ***Errors Made on Timed Practice of Problem Material.*** The purpose of this practice is to make the student concentrate on the flow of moving rapidly from one part of the problem to another. During this practice, the emphasis is entirely on building skill in the activity; therefore, errors should not be counted.

d. ***Errors Made On Beginning Lessons in Elementary Typewriting.*** In beginning typewriting, many errors are chance errors and do not have a specific cause or remedy. Rowe[3] says that 90 percent of the errors made during the first month of typewriting disappear naturally and that it is wise not to exhibit concern for them. However, persistent errors must be discovered, analyzed, and eliminated.

2. ***Errors to Be Studied.*** When typewriting students reach the control stage, errors should be studied; and the cause should be determined. Typewriting teachers must understand WHY errors are made — just knowing that they are made is not enough. Error analysis charts will aid teachers and students to detect the errors or difficulties that are persistent.

Some business educators believe that error analysis charts consume too much time. However, error analysis charts can be useful aids in typewriting instruction if they are used effectively. An error analysis chart has the following purposes:[4]

a. Forces the student to do accurate proofreading by requiring specific information to be classified and recorded.

b. Provides a clear, visual record of the typist's control and shows him, in compact form, the exact nature and quantity of the errors being made.

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[3] John L. Rowe, "How to Meet Changing Needs in Typewriting: Development of Accuracy in Typewriting," *Business Education World,* 44 (April, 1964), 23-25, 34.

[4] T. James Crawford, "Your Typing Questions," *Balance Sheet,* (September, 1946), 14.

c. Provides cumulative records which may be used for purposes of analysis, comparison, or as the basis of selecting remedial materials and procedures. Just how they are used depends largely upon the individual teacher.

In analyzing errors that persist in control typing when the objective is to produce the "best copy" possible, two major classifications develop (1) the errors, which are caused by faulty stroking, that can be detected as soon as the transcript is checked and (2) the flaws in technique that reduce typing power and that can be detected only by observing the student at work.

Therefore, "the primary purpose of error analysis charts is to make possible more intelligent remedial practice by helping students select meaningful drill materials and procedures. Unless typists are taught that the real value of error charts is the *use* of the information that is recorded, there is little gained by requiring students to make detailed entries. Without intelligent *application,* error charts amount to nothing more than mere busy work."[5]

3. *Errors to Be Used As Guides.* "Errors can be used as guides to teachers and students for alerting them when it is time to shift the emphasis from building a faster stroking rate to dropping back in speed to bring up the accuracy."[6]

4. *Errors to Be Erased and Corrected.* Many typewriting authorities are of the opinion that erasing should not be introduced too early. They also agree that erasing skill is one of the most important qualifications of a good typist. Because so many students take typewriting for only one semester, many typewriting authorities recommend that erasing be taught near the end of the first semester. Probably, the best time to present erasing is when students first apply their skill to problem typewriting, which will be near the end of the first semester.

   Because erasing is considered a tool of production, this topic will be discussed in detail under "Production Typewriting."

Rowe further classified the various types of errors in first-semester typewriting according to their relative frequency. He recommends

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[5] *Ibid.*

[6] D. D. Lessenberry, "Errors: Their Causes and Correction," Monograph 117, *Practices and Preferences in Teaching Typewriting,* (Cincinnati: South-Western Publishing Company, 1967), pp. 59-62.

ERROR ANALYSIS CHART

Name____________________ Date: From____________

Class____________________ To____________

Teacher__________________ Period____________

Technique

I. Machine Operation

- A. Shift Key
  1. Flying "Caps"
  2. Lower-case letters high
  3. Lower-case letters low
  4. Failure to shift for special characters
  5. Failure to capitalize
- B. Vertical Spacing
  1. Failure to space
  2. Too many spaces
- C. Horizontal Spacing
  1. Too many spaces
  2. Failure to space
- D. Stroking
  1. Strikeovers
  2. Crowding
  3. Two keys at once
  4. Shadowed letters
  5. Too light
  6. Punctuation marks too heavy
- E. Arrangement
  1. Top margin too wide
  2. Top margin too narrow
  3. Uneven right margin
  4. Uneven left margin
  5. Bottom margin too wide
  6. Bottom margin too narrow
  7. Last line slanted

Technique				
8. Material not centered correctly				
F. Tabulation				
1. Uneven left margin				
2. Uneven spacing between columns				
3. Uneven paragraph indentions				
II. Omissions				
A. Spaces in place of letters				
B. Omitting words				
C. Omitting lines				
III. Additions				
A. Added strokes				
B. Added words				
C. Repetition of lines				
IV. Transpositions				
A. Letters reversed				
B. Words reversed				
V. Substitutions				
A. Wrong letters				
B. Wrong words				
VI. Erasing				

remedial procedures for the following types of frequently occurring errors:[7]

1. *Substitution Errors.* Substitution is the most frequently occurring error in typewriting. Fifthy percent of all typing errors in first-semester typewriting involve striking the wrong key for a letter, a punctuation mark, or a number or symbol. By far the largest proportion of substitution errors results from striking the wrong key for a letter. This error is caused, for the most part, by one factor — a lack of locational keyboard security. The recommended practice for students who make excessively large numbers of substitution errors is to have them repeat the first ten or twelve lessons in a typewriting textbook.
2. *Omission Errors.* Omissions constitute approximately 20 percent of all errors made in first-semester typewriting. The most common omissions are: the last letter of a word, one or more complete words, a line or phrase, a space before a word, an item of punctuation, the last part of a word. This type of error is also caused, to a large extent, by incorrect copy perception resulting from lack of concentration.
3. *Insertion Errors.* Nearly 10 percent of all typewriting errors are insertion errors. This category includes: the doubling of letters, extra spaces between words, extra punctuation, extra spaces after punctuation within a sentence, the insertion of the first letter of the next word, the insertion of an extra letter or letters, and rewritten lines, phrases, or words.
4. *Capitalization Errors.* Approximately 5 percent of all errors that occur at the end of the first semester in beginning typewriting are errors in capitalization, the most common one being the capital typed above the line. This error is caused by a faulty technique in shift-key operation.
5. *Strikeovers.* Only 4 percent of the errors in beginning typewriting fall into this category. Heavy penalties for strikeovers serve no useful purpose. Point out to the student that striking over a letter calls attention to an error that might not have been noticed otherwise.

EFFECT OF READING ON ACCURACY

Typewriting teachers must take time to emphasize and explain proper reading habits. If typewriting teachers are not aware of a student's reading problems, they cannot be successful in the classroom. Typewriting teachers should determine the reading level of *all* beginning typewriting students.

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[7] Rowe, *op. cit.*, 25.

The chief purpose of reading for typewriting is the reproduction of symbols, which means perceiving the details of the printed word rather than its meaning. Usually a student's reading rate is faster than his typewriting rate. Therefore, a student should be taught to read the copy at a speed that matches his typewriting rate. Correct habits of reading for typewriting require the typist to move his eyes smoothly and continuously along the lines of the copy, reading slowly, carefully, and attentively. Therefore, it is obvious that reading skills are necessary for success in typewriting.[8]

IMPROVEMENT OF ACCURACY

When students are not typing with proper control, the following devices should be used to improve accuracy:

1. Use specific control, accuracy, or concentration drills in class.
2. Emphasize improvement in techniques.
3. Set up definite problems for accuracy.
4. Insist that the pupil type with control.
5. Require some students to type on the letter level; that is, pronounce each letter as it is typed.
6. Have students practice on words containing difficult letter combinations or reaches.
7. Build accuracy through short, intensive efforts. First, use one-minute drills, then two-minute, etc.

Winger makes the following statement about the development of accuracy:[9]

> . . . accuracy comes as a result of a well-organized teaching approach that insists upon the use of correct motions; that provides well-chosen and designed skill building materials, for the student to type; and that provides constant observations of students and their papers in order to develop what is normally thought to be an effective diagnostic and remedial program of instruction.

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[8] Harves Rahe, "Implications of Research in Typewriting," *National Business Education Quarterly*, 29 (March, 1961), 12.

[9] Fred Winger, "Errors: Their Causes and Cure," *Methods of Teaching Typewriting*, Yearbook of the Eastern Business Teachers Association, (Someville, New Jersey: Somerset Press, 1965), pp. 77-89.

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DRILLS IN TYPEWRITING

The teaching of a skill is based primarily on drill, which means that repetition is necessary for skill building. Therefore, for students to maintain and develop typewriting skill in all typewriting classes, purposeful repetition is necessary. Approximately twenty years ago in *Modern Business Education,* Lessenberry emphasized the importance of purposeful practice in typewriting by making the following observations:[1]

> Purpose determines how typing practice should be done as well as the practice materials that should be used. The purpose of the practice must be understood and accepted by the student as well as by the teacher; then appropriate practice procedures must be used to achieve the purpose. If the purpose of the practice is to speed up the stroking rate, for example, the materials of practice should be made up of "words that flow" from the fingers in easy stroking patterns. The use of material that has a disproportionate number of difficult words or words that are controlled with one hand will defeat the purpose of the practice. Such material is all right—but not for the stated purpose of improving the stroking rate. It is necessary, therefore, for the teacher to make certain that the student understands the purpose of the procedure. *Purpose comes first.* In each portion of each day's lesson the purpose must be identified and practice must be directed toward the achievement of that purpose.

Russon and Wanous give the following principles for typewriting teachers to observe when conducting drill activities:[2]

A. Students must use good form in typing drills.

B. Students should know the purpose of each drill.

C. Students' practice work must be motivated.

D. Students' practice periods must be regular and frequent.

E. Drudgery of drill work must be eliminated.

F. Students' drill work should be individualized.

G. Drills should be selected to match students' needs and levels of instruction.

There are as many types of drills as there are component factors in typewriting skills. An examination of drill books and typewriting textbooks reveals drills designated as control drills, rhythm drills, technique drills, number drills, alternate-hand drills, balanced-hand drills, adjacent letter drills, alphabetic drills, concentration drills, conditioning drills, remedial drills, etc. Some of the most frequently used drills and some of the purposes for which each drill is designed are as follows:

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[1] D. D. Lessenberry, "Purposeful Practice in Typewriting," *Modern Business Education,* (November, 1948), 6-8.

[2] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting* (Cincinnati: South-Western Publishing Company, 1960), p. 212.

A. *Rhythm Drills.* Perhaps the most widely used type is known as the Expert's Rhythm Drill. It is used chiefly for warmup purposes.
a;sldkfjghfjdksla; a;sldkfjghfjdksla;
Some of the values to be derived from this drill are as follows:
   1. Helps develop the muscular coordination needed for rapid, alternate stroking.
   2. Strengthens the muscles as a warmup better than finger gymnastics.
   3. Helps the student to realize his potential stroking power.
   4. Enables the student to concentrate on finger action rhythm, elimination of waste motion, and other related factors.

B. *Alphabetic Drills.* First the alphabet itself is often used as a warm-up drill for improving control. The basic drill, with two variations, is given below.

a b c d e f g h i j k l m n o p q r s t u v w x y z
(type with space between)

aa bb cc dd ee ff gg hh ii jj kk ll mm nn oo pp qq rr ss, etc.

The following are some of the purposes of these drills:

1. Provides a warmup not limited to one row of keys.
2. Exercises every finger and reviews all the alphabetic reaches.
3. Gives opportunity for checking correct fingering and proper stroking.

Alphabetic sentences contain every letter of the alphabet. Some of the purposes of these drills are as follows:

1. Develop the students' power of concentration and control.
2. Provide review of all the letters in meaningful content.
3. Strengthen weak fingers and establish positive control of reaches.

No one alphabetic sentence should be worked to death, but a number of sentences should be provided. Here are two examples:

The quick brown fox jumps over the lazy dog.
Pack my box with five dozen lacquered jugs.

Alphabetic paragraphs may be used to review the keyboard and to set key locations. An example of an alphabetic paragraph is given below.

> You should fix a goal for each practice period. Use quick, easy strokes instead of jerky motions and you will be sure to win your goal. Every drill should be practiced with zeal.

C. *Alternate Hand Drills.* Any word containing reaches that break the rhythm tend to reduce the speed. This statement is particularly true of words typed wholly by one hand. Since several hundred very common words fall into this category, some class time should be devoted to drills that will develop better skill on these combinations. Drills of this type tend to bring the hands into better balance and increase the stroking rate for each hand. The following list is only suggestive:

as in we my at up be no car oil few you was pin for
bad hop sea him car ply age ink are ill bed inn get
after imply state onion great pupil rest upon ease
rerget nylon secret opinion regard million refer

D. *Number and Symbol Drills.* Most students do not develop control of the top-row characters by touch with the same proficiency they acquire in controlling the rest of the keyboard. Employers consider this the greatest deficiency of beginning typists. This is probably because the numbers and symbols are taught intensively for a brief period of time and then no further attention is given to the matter during the remainder of the typewriting course. Effective touch control of the number and symbol keys is one of the important components of typewriting skill, and it can be learned just as effectively as any other component, provided sustained emphasis is given to it throughout the course.

The following are some representative drills that may be used to develop facility in controlling the number and symbol keys:

1. *Corresponding-sequence drills*—also known as "we 23" drills. The drill is composed of alternate words and numbers whose reaches are written in the same sequence and by the same fingers:

we we 23 23 up up 70 70 you you 697 697

2. *Consecutive-number drills.* These drills are beneficial if the teacher makes certain that the student types each number as a reach from the home row.

   1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0
   11 12 13 14 15 16 17 18 19 10
   11 22 33 44 55 66 77 88 99 00

3. *Parallel-reach drills.* These drills establish finger associations and improve finger reaches. They are easy to type and inspire confidence in number control.

   29 38 47 56 75 83 92 etc.
   129 138 147 156 183 etc.

4. *Contextual drills.* These drills are useful in providing realistic practice on both numbers and symbols.

   "No!" he shouted, "The price is 25¢, not 37¢.
   Jones-Morse bonds sell at $125 and yield 4.3%.

5. *Speed sentence drills.* These drills are very effective as a daily routine in reviewing the number reaches if a different sentence is used each day.

   The sum of 5 and 8 and 2 and 9 is 24.
   What is the sum of 4 and 7 and 1 and 6 and 3?

For best results, follow these suggestions in the use of drills on numbers and symbols:

1. Instead of regarding practice on numbers and symbols as drudgery, make it the most exciting, interesting, and challenging kind of practice.
2. No class period should elapse without a planned drill on numbers and symbols of at least one or two minutes' duration.
3. The daily drill should be sufficiently varied to prevent monotony and to provide practice on the various types of drills already described.

E. *Drills for Control of Manipulative Parts*

1. Carriage return and tabulator key or bar
2. Shift keys
3. Space bar
4. Margin release
5. Backspacer

F. *Unison Typing Drills.* These drills should be used if a class seems to have difficulty relaxing after a speed drive or if the students are not dropping back to the control level at the proper time. A drill such as this just before a timed writing will help the students find their control level so that they will not start typing too rapidly. Overuse of unison typing drills will deter speed development. *Speed typing on the expert level is not evenly spaced typewriting.*

G. *Direct Dictation.* An effective method of developing quicker response, word recognition can be developed easily, and typing power can be achieved quickly. The teacher should call the strokes in snappy, staccato fashion with marked pauses for relaxation between groups of letters and between words. It is good practice to require students to call strokes also. Attention is focused on the particular motions they are trying to learn, and their actions become more nearly correct.

Russon and Wanous in *Philosophy and Psychology of Teaching Typewriting,* Chapter VIII, "Meaningful Typewriting Drills," discuss the following typewriting drills:[3]

A. Drills to Improve Stroking
   1. Repeated-letter drills
   2. Drills to strengthen weak fingers
   3. Drills for difficult reaches

B. Drills to review and Set Key Locations
   1. Alphabetic sentences and paragraphs
   2. Location drills

C. Drills for Developing Flowing Rhythm
   1. Word-recognition response
   2. Letter-response drills
   3. Combination response drills

D. Drills for Holding Eyes on the Copy

E. Drills for the Control of Manipulative Parts
   1. Carriage return and tabulator key or bar
   2. Shift keys
   3. Space bar
   4. Margin release
   5. Backspacer

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[3] Russon and Wanous, *op. cit.,* pp. 191-215.

F. Drills for Developing Relaxation in Typing

1. Finger exercises
2. Frequent changes of pace
3. Forced reduction in speed

G. Drills for Building Correct Mind Set

H. Drills to Develop Number-Row Mastery

1. Number fluency drill
2. Number warm-up drill
3. Intensive practice drill
4. Speed sentences
5. Comparison writing

I. Drills to Develop Typewriting Power

1. Building sustained speed
2. Paced writings for speed maintenance
3. Progression typing for accuracy
4. Progression typing for speed
5. Comparison drills

John Rowe, in the *Business Education World,* April, May, and June, 1952, presents a detailed description of the use of drills in typewriting.

After a careful study of the various types of drills, it is obvious that each type of drill is designed to help students achieve a particular skill in the most efficient way. Each drill in a textbook, therefore, should be used for the purpose that is designated by the author. If a teacher instructs the students to practice all types of drills the same way or to type a certain number of perfect lines of each drill, then that teacher has a poor concept of using drills in typewriting instruction.

Lessenberry points out that the following results will be obtained only from effective use of drills in the typewriting classroom:[4]

> The right kind of practice must change the typing behavior pattern, must drop out awkward motions and bring into use a precise, controlled, and resultful sequence of techniques with speed of individual motions. This kind of practice is "magic." It places the emphasis on *how* the learner types, not on *what or how well he types.*

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[4] D. D. Lessenberry, "The Rationale for a Widely Used Sequence of Introducing the Letter Keyboard," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Co., 1967), pp. 17-20.

Crawford gives the following advice to typewriting teachers:[5]

> There is no panacea or easy way for attaining high typewriting skill. Learning to typewrite well is the product of hard work and requires time for maximum development. High skill demands vigorous, conscientious effort, as well as rigid self-discipline, on the part of those who would excel; and hours of practice on difficult, sometimes distasteful, drills are essential. Attempts to develop competent typists by avoiding rigorous classroom practice generally prove disappointing. Typically, students do not relish intensive practice on difficult or challenging technique drills; yet it is well known that such practice is basic to impressive achievement in typewriting. One of the great challenges facing teachers today . . . centers around their ability to motivate students . . . to a point where they are willing to engage diligently in such practice programs. The extent to which typewriting teachers are able to make strenuous classroom activities palatable to students will determine, in large measure, the amount of skill realized at the end of any course.

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[5] T. James Crawford, "Fundamental Considerations for Successful Typewriting Instruction," *Business Education Forum,* 17, (October, 1962), 20, 28.

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PRODUCTION TYPEWRITING

IMPORTANCE OF PRODUCTION

While basic skill in key-stroking is essential since it represents the potential of any typist at a given time, the typist possessing the highest key-stroking rate is not always the most competent in typing problems or jobs requiring the application of that skill. The value of a typist in a business office is measured in terms of productivity and not merely in key-stroking skill. Crawford substantiates this viewpoint in this statement:[1]

> The theme of all efficiently run offices is productivity. The worth of any typist to a business is determined, in large measure, by the ability of that typist to turn out volumes of acceptable work. Many firms have established quotas which must be attained to hold a typing job; and still other firms use production figures as a basis for promotion and salary increases.

Teachers traditionally have overemphasized mere key-stroking ability and have neglected developing the ability to apply this skill. Research[2] has shown that speed in producing key strokes does not transfer automatically to comprehensive production performance. In typewriting, the amount of transfer of basic skill to problem typewriting tends to be proportionate to the extent of teaching for transfer. *Production typewriting, therefore, must be taught.*

DEFINITION OF PRODUCTION TYPEWRITING

Production typewriting may be defined as the application of basic skills to realistic problem-solving situations with the objective of attaining beginning office standards. In his study, Crawford defined the term in more detail as follows:[3]

> Production typewriting has been defined most comprehensively to include all activities involved in the process of completing jobs from the time they are received until the time they are finished. Production typewriting includes in the performance time such important related requirements as following variously specified directions, computing the spacing needed for copy arrangement, making necessary machine adjustments, handling materials, preparing carbon copies, proofreading, correcting occurrent errors, and appropriately disposing of finished products.

In other words, production typewriting is advanced vocational typewriting, the objective being to give the student training in all the specific typing activities as well as related nontyping activities necessary to prepare a vocationally competent typist. Balsley enlarges on the function of advanced or production typing by saying:[4]

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[1] T. James Crawford, "Typewriting and the Vocational Education Act," *Business Education Forum,* 18 (April, 1964), 24.

[2] T. James Crawford, *Production Typewriting,* Monograph 97, Cincinnati: South-Western Publishing Company, 1960. p. 21.

[3] *Ibid.,* p. 1.

> The purpose of advanced typing instruction is to prepare prospective employees to function in the office "support" group of a business, industry, or government in a satisfactory manner. To function in this desired manner, the employee must bring to the job certain skills, knowledges of business operations, attitudes, and work habits. Advanced typewriting should be an "office operations" course pointed toward problem-solving in a realistic situation.

It should be stressed that production typewriting is an outgrowth of basic skill training and not something separate or distinct. It embodies continued emphasis on basic techniques and skills plus problem-solving procedures.

WHEN PRODUCTION TYPEWRITING SHOULD BE INTRODUCED

A fundamental principle to remember is that the student should not be introduced to problem-solving activities until he has been thoroughly grounded in the basic techniques. He cannot apply that which he does not know. As Wanous[5] points out, "Best results seem to come when students are introduced to office-type work after they have acquired the basic technique of typewriting. If they are given production units before they have acquired basic techniques, earlier gains in technique development are largely dissipated, and letters and other papers turned out fall below acceptable standards." In other words, forcing the student to apply half-learned skills too early is likely to cause him to fail to keep his eyes on the copy and look up when returning the carriage, operating the various machine mechanisms, etc., thus defeating the ultimate objective of vocational competency.

In general, it may be said that the student should acquire a minimum gross stroking skill of 35 to 40 wpm before engaging in difficult problem-solving activities. Time spent in production typewriting before this point is reached could more profitably be spent in strengthening basic skills.

In most schools, personal use typewriting courses are two semesters in length, and vocational courses are four semesters in length. Under these typical conditions, it seems doubtful if it is advantageous to introduce production typewriting before the latter part of the second semester.

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[4] Irol W. Balsley, "Some Suggestions for Achieving Office Practice Objectives in Advanced Typewriting," *Practices and Preferences in Teaching Typewriting*, Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 79.

[5] S. J. Wanous, "How to Get Better Results on Production Typewriting," *Business Education Forum*, 4 (November, 1959), 13-15.

There is ample time in the third and fourth semesters for strong emphasis on production typewriting.

Some Guilding Principles for Developing Problem-Solving Abilities——

Crawford suggests the following guiding principles to ensure an effective program for developing power in solving problems:[6]

1. *Problem typewriting experiences must consist of a great deal more than routine copying.* To gain strength in problem solving, typists must encounter learning challenges calling for individual decision-making and personally determined judgments. Problem typewriting requirements should be stimulating and thought provoking and should call forth maximum individual effort. A prime objective of all problem instruction should be to produce typists capable of working without constant direction and supervision.

2. *Problem typewriting should include much repetitive practice.* Meaningful repetition iong has been accepted as a valuable contributant to skillful key stroking, but its role in the development of problem typewriting power has been grossly minimized. Actually, ability in solving problems at the typewriter is accelerated through repetitious performance just as stroking power is enhanced through repeated writings. But repetitive practice in problem typewriting should include all activities related to the completion of the jobs concerned rather than just the key-stroking activities involved, for strength in the nontyping as well as the typing phases of problem solving is essential if maximum development is to be realized.

3. *Problems assigned should be completed under the pressure of time.* The amount of pressure exerted should be in increasing amounts from the beginning through the advanced courses and should vary within the problem-production cycle. But it is imperative that typists be required to attack and complete their problems under the influence of time limitations.

4. *Measurement of problem typewriting should require total performance.* All activities involved in completing problems should be included in problem testing. Handling directions, organizing materials, adjusting equipment, making computations, proofreading, making corrections, and the like should be considered part of the testing experience and test results should reflect ability in those functions.

5. *Problem typewriting measurement should place practical, realistic responsibilities on the typist.* Strength in problem solving invariably re-

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[6] T. James Crawford, "Toward a Broader Concept of Problem Production Typewriting," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 71-74.

sults from training which holds typists accountable for all activities involved in producing an acceptable finished product. The responsibility for complying with directions, adopting satisfactory procedures, verifying content, exercising options, producing satisfactory volume, and for appraisal of completed work must be accepted by the typist as rightfully belonging within his scope of required behavior.

OTHER SUGGESTIONS FOR ACHIEVING PRODUCTION COMPETENCY[7]

1. Prepare the prospective employee to work for a sustained period of time.
2. Be sure the prospective employee is familiar with and accustomed to using stationery and other supplies of the type currently in use in offices.
3. Have the prospective employee work from source documents of the type that he will use in the typical business office.
4. Establish the standard of mailability for all production work.
5. Provide instructional problems that are representative of office tasks involving typewriting.
6. Provide the proportion of instructional time necessary for the prospective employee to become skillful in each typical typing assignment.
7. Teach students to work efficiently even though frequently interrupted.
8. Teach students to be courteous and to have respect for the time and property of others.
9. Educate the prospective employee regarding the role of each type of job in the firm's operation.
10. Teach the prospective employee to work under pressure of time.
11. Teach the prospective employee to organize the work and procedure.

METHODS OF DEVELOPING SUSTAINED PRODUCTION SKILL

Production typewriting per se is not new. It has been in existence for several decades under various names, such as budgets, projects, units, problems, etc. What is relatively new, however, is the recognition that *production typewriting must be taught* and the fact that effective methods have been developed for teaching it. Some of the recommended teaching procedures are presented here.

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[7] Irol W. Balsley, *op. cit.*, p. 82.

1. ***Factors Affecting Production Skill Development.***

Analysis of production typewriting skill reveals that there are many vital factors which affect the typist's production rate. No attempt is made to assess the relative importance of each factor. It becomes quite obvious, however, that a deficiency in any one of the factors seriously affects the production rate. The old adage, "a chain is no stronger than its weakest link," is applicable to the production process. For instance, if a student is woefully deficient in erasing skill, his production rate will remain far below his potential until his skill in this one factor is improved. All students do not have the same weaknesses; therefore, the teacher must have a planned program of teaching for improvement for each of the factors discussed below so that the needs of all students will be served and so that all students will show improvement in each of the factors regardless of how proficient they may be in the various factors.

a. *Straight-Copy Speed and Accuracy.* Since the student's key-stroking speed represents his production potential, the building of straight-copy speed should not be neglected once production typing is begun. As Crawford[8] points out, ". . . there must be continued emphasis given to intensive drives for increased speed, and conscientious effort must be exerted to produce as high a degree of accuracy as possible." In other words, if all other factors are developed to the point of expertness, any increase in key-stroking speed will affect production output proportionately. To produce improvement in this factor, the teacher should conduct speed and accuracy drills on a systematic basis throughout the typewriting production program. See the appropriate sections pertaining to speed and accuracy development.

b. *Handling of Materials.* Efficient handling of materials saves time and therefore increases the production rate. First, the proper prepositioning of supplies with relation to the work surface must be taught. Second, using time and motion study principles, the most efficient method of handling materials must be taught, such as chain feeding envelopes, assembling carbon packs, and the like. The job breakdown plan is an effective method of teaching the steps in each procedure.

c. *Erasing.* Many authorities agree that erasing should not be taught prior to the application phase of typewriting—that time consumed by the student in erasing might be more profitably spent in drill for improving basic techniques. Regardless of whether some teachers have taught erasing prior to the introduction of production typewriting, it is at this stage that erasing becomes meaningful to the student. Psychologically, then, he sees a felt need for it and can be easily motivated to learn the most efficient way of erasing as well as to devote sufficient practice to mastering the technique. However, as Kelly[9] points out, "While the proper technique for correcting errors is important and necessary, there is no substitute for accuracy."

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[8] Crawford, Monograph 117, *op. cit.,* p. 71.

Erasing is very important and should be taught thoroughly. Stone[10] stresses the fact that teachers should teach all aspects of erasing. Items such as the following should be included: types and uses of erasers, kinds and uses of erasing shields, position of the carriage, erasing on carbon copies, crowding and expanding or spreading, neatness in erasing, speed in erasing, correcting copy in the machine, correcting copy out of the machine, reinserting and correcting copy. To this list may be added such things as effect of quality of paper on kinds of erasers to use and on erasing techniques, use of erasing fluids and strips, and the like. Obviously, to teach erasing effectively requires adequate time. In this connection, Balsley[11] says, "Too often erasing is presented in a few minutes of class time and then the development of good habits is left to chance."

The aspect of erasing which affects production most is speed in making an erasure. Of course, complete knowledge about methods and materials of erasing is essential as a background to the development of speed. While the erasing process is not a complicated procedure, effective teaching requires presentation in a series of specific steps based on time and motion study principles. The following steps in erasing should be taught *and demonstrated by the teacher:*

SIMULTANEOUS MOTIONS

	Left Hand	*Right Hand*
Step 1	Grasps carriage release lever	Reaches for eraser
Step 2	Slides carriage to right or left depending on which side the error is nearest	Brings eraser to the paper at place where error is made
Step 3	Holds carriage	Erases error
Step 4	Slides carriage to position for making the correction	Returns eraser to prearranged location
Step 5	Holds carriage	Strikes correct key for making correction

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[9] Jonathan M. Kelly, "Teach Typewriting Error Correction Early," *Balance Sheet,* 43 (November, 1961), 112-113.

[10] Vernon W. Stone, "Be Realistic About Typewriting Erasing," *American Business Education,* 16 (December, 1959), 101-103.

[11] Irol W. Balsley, "Improving Desirable Personal Development in Students of Typewriting," *Business Education Forum,* 16 (November, 1961), 12-15.

The teacher should first demonstrate these steps in slow motion several times, describing the motions each time. Next, the students should practice the movements several times until they are confident of their knowledge of the steps in the procedure. Then timed class erasing drills should be conducted. These drills should be conducted periodically until satisfactory results are obtained. In one major study,[12] it was found that the average time required by fourth semester high school students to correct an original copy was 21 seconds. This figure represents an average; the better students should make an erasure in a few as 6 to 10 seconds.

d. *Related Knowledge.* Another factor which affects the production rate is the student's knowledge of related English, such as spelling, punctuation, syllabication, possessive case, capitalization, and number rules; skill in use of reference books; knowledge of office procedures; and the like. The degree of thoroughness of the knowledge determines speed of application, which in turn affects production. The teacher cannot assume that the student brings to the class adequate related knowledges but must refresh and supplement his knowledge as necessary.

e. *Proofreading.* Speed and accuracy in proofreading plays a significant role in the student's production rate of mailable copy. For a complete discussion of this topic, refer to the section on Proofreading in the chapter on Methodology.

f. *Decision Making.* The essence of problem solving is decision making. Problem typewriting requirements should be challenging and thought provoking. The student's facility in making the decisions necessary in each type of problem materially affects the production rate. Decisions must be made regarding format and arrangement, correctness of mathematical computations, types of supplies to use, and the like. Guiding principles must be taught pertaining to the major types of typewriting problems to be encountered.

g. *Attitudes and Traits.* The production of office workers is affected as much by attitudes and traits as by knowledges and skills. Yet this important area of vocational preparation is often neglected by business teachers. The following discussion of the essential *Characteristics of a Production Typist* by Stuart[13] merits careful study:

(1) *Emotional Stability.* Students must acquire self-control that will practically eliminate periods of emotional instability.

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[12] Irol W. Balsley, "Evaluating Typewriting Performance Using Mailable Words-A-Minute," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 93.

[13] Esta Ross Stuart, "Production Typing Concepts, "*UBEA Forum,* 4 (January, 1950), 27-28.

Students should be taught early to do many kinds of work under pressure, and this training should continue to the end of the typing course.

(2) *Fast and Accurate Work.* Determine the pace as a production typist. This is done by setting up time and accuracy goals that are easy and attainable in every type of activity. When the goal is attained, a new goal should be set. The normal pace as a production typist is based upon the latest attained goal. A production typist must be willing to work faster than this normal pace when emergencies arise and to keep at it until the job is finished.

(3) *Endurance.* Perhaps the most difficult adjustment to make in the transition from the classroom to the business office is that of working continuously for a full business day. The learning situation should be arranged to provide for continuous application on specific tasks for full class periods.

(4) *Ability to Follow Instructions.* Either oral or written.

(5) *Attention to Details.* Students have a natural tendency to slight details. Teachers must stress the importance of attending carefully to every detail in every job, which involves such things as checking the spelling of names, titles of individuals, accuracy of figures, the number of enclosures, the number of envelopes addressed against the number of names.

(6) *Ability to Organize Materials.* Before the work is begun, students should be taught to assemble and arrange everything that is needed. Students should plan their work so that every effort will contribute to production.

(7) *Proofreading.* Production typists must proofread and correct all typing work so that it is 100 per cent correct.

(8) *Industriousness.* Typists should keep busy. As soon as specific assignments are finished, related things should be done, which include rearranging working materials, sorting papers, filing, etc.

(9) *Resourcefulness.* This includes starting to work without specific instructions, finding ways to save time on routine jobs, and planning practice that will improve typewriting skill and output.

(10) *Dependability.* Classroom activities should provide opportunity for self-directed activity. This activity should be well within the capacity of students, so that they can be held strictly to an exact accomplishment of it.

2. *Russon-Wanous Plan for Building Problem and Production Skill.*[14]

They present a four-step weekly pattern for teaching problem typing for both first-year and second-year typing.

a. *Weekly Pattern—First Year.* By this method, such typing problems as business letters, tabulations, manuscripts, and the like are presented in a certain pattern. The steps in the pattern are as follows:

(1) *Learning the Nature of the Problem.* The first day of the week is used for learning about the problem. The teacher explains the problem, demonstrates its difficult or unusual features, and works through the difficult parts with the students as they all type in unison. The students practice through the problem twice. The teacher merely inspects the papers but does not collect them.

(2) *Skill-Building on the Problem.* The second and third days of the week are spent in building skill in solving the problem. Timings are given on difficult parts of the problem. In letter problems, the opening and closing lines would be repeated several times under timing.

(3) *Measurement Review of Problems.* The fourth day of the week is devoted to measurement review of the problems emphasized during the preceding three days. The typing errors may be erased and corrected during the timed interval (usually 20 minutes), or they may be circled at the end of the interval. Gross-words-a-minute scores should be computed but not recorded.

(4) The fifth day should be used for measurement of the students' ability on the problems. The test interval is 25 or 30 minutes, and the papers are checked by the teacher and recorded after they have been proofread by the students and GWAM rates determined. Grading may be done on the basis of GWAM scores plus the errors per minute.

b. *Weekly Pattern—Second Year.* In addition to increasing the straight-copying skill, the objective is to build maximum production ability. The problems presented in the second year are more complex variations of those presented in the first year. The second-year pattern consists of the following three parts:

(1) *Learning Phase of the Cycle.* The purpose of this phase of the cycle (which takes up the first three days), is to equip the students with the know-how of the problem and to build short-interval skill on it. Teachers should provide ample explanation, demonstration, and illustration. The students type two problems (one arranged and one unarranged) each of the three days. Papers may be collected at the end of the period, quickly inspected, and thrown away.

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[14] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting,* Cincinnati: South-Western Publishing Company, 1960, pp. 217-240.

(2) *Sustained Skill-Building Phase of the Cycle.* The fourth day of the cycle is for the purpose of increasing production rates. The material used is the unarranged problem of each of the first three days, and the students should be able to work steadily through the 30 minutes allotted. Errors are erased and corrected before removal from the machine. The students compute their PRAM scores. The papers are collected, but the results are not recorded.

(3) *Measurement Phase of the Cycle.* The last phase is a test to determine production ability. The copy is new material in unarranged form that is similar to that used on the preceding days. The time interval is usually 25 or 30 minutes. The papers are collected and graded by the teacher on the basis of PRAM scores. For more detailed explanation, see Chapter 9 in the reference cited.

KINDS OF PRODUCTION TYPEWRITING

In general, there are two ways in which production typewriting may be taught. This concept is expressed by Crawford[15] as follows:

> Production typewriting has had various interpretations by teachers interested in having their typists develop that power. Some have considered it to mean repetitive copying of selected jobs, excluding such related activities as making machine adjustments and correcting errors, to determine the ability of a typist to produce volumes of work on limited, specialized problems. Others have viewed the scope of production more broadly and have administered tests under the same general conditions, but have required performance on several different jobs rather than on just one.

First, the method most frequently found in textbooks consists of a mixture of different kinds of typewriting tasks or problems, such as a rough draft, a letter, a tabulation, an invoice, etc. Usually three or four such problems are included in a production test, but the number depends on the length and difficulty of each part as well as the test time interval. Proponents of this kind of production typewriting maintain that it is representative of the kind of work found in a typical office. A word of caution should be observed. Unless the content of such tests is of approximately equal difficulty, the results are not comparable.

Second, an alternative type of production typewriting consists of restricting the test to problems or units of the same type, such as business letters, form letter fill-ins, addressing envelopes, invoices, etc. All units should be of approximately the same difficulty; and if production is to be computed in terms of the number of units produced in a given time, each unit should be of the same length. If the units are of varying lengths, production should be computed in terms of words a minute. The results can be considered with relation to a percentage of the student's straight-copy speed. Most progressive firms have developed standards for this kind of production typewriting. See Standards at the end of this section. For teaching production work involving typing envelopes or form fill-ins, the teacher should duplicate a list of 100 envelope addresses for class use. An example of two business letters will be given to illustrate this kind of production typewriting. Enough letters can be duplicated on one legal-size sheet to take care of a test of 25 to 30 minutes in length.

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[15] Crawford, Monograph 97, *op. cit.*, p. 97.

EXAMPLE OF BUSINESS LETTERS FOR PRODUCTION TEST

155 Words Current Date 901

Mr. Charles F. Lane, 320 Randolph Street, Wilmington, Delaware 965
Dear Mr. Lane: As you requested in your letter of September 5, 1036
we are enclosing the pictures of our cabinets that you want. The 1107
factory has promised to let us have some pamphlets with pictures 1184
and descriptions of our various cabinets. As soon as these arrive, 1260
we will forward a number of them to you. (P) At the present time 1339
all we can send you is one model; that is, the No. 422. We have 1416
our order in for all the other models, which should arrive shortly. 1491
Why not place your order with us now so that we shall have it 1567
on file as soon as our shipment arrives. (P) I still recall the 1643
pleasure of my visit with you about ten years ago. At that time I 1723
was representing the Acme Lumber Company, which has recently 1808
been taken over by our organization. Very truly yours, Rand &
Company, Eugene B. Stauber, Sales Manager XXX Enclosures

143 Words Current Date 1824

Mr. William O. Jackson, 804 Lexington Avenue, Richmond, 1890
Virginia
Dear Mr. Jackson: Enclosed is a copy of our new booklet, *Guide* 1983
to Reading. You will see that we have not only listed the finest 2061
periodicals for children but that we have also classified them 2135
according to the fields of interest that they serve. (P) The prices 2211
listed in the *Guide to Reading* are for one-year subscriptions. From 2304
this price you may deduct a discount of 25 per cent. We can 2381
serve you quickly and efficiently. (P) The prices we have listed 2459
are, of course, subject to change without notice. Because of the 2535
possibility that these prices might rise in the near future, we 2613

strongly advise you to place your order now while these low, 2696
economical prices are still in effect. Very truly yours, Howard
Printing Company, Carl T. McLendon, Vice-President XXX

Both of the kinds of production work described above have advantages and disadvantages. A well-rounded production typewriting program should include instruction in both kinds of work.

PRODUCTION MEASUREMENT

Russon and Wanous[16] suggest two methods of computing production rate, depending upon the conditions and/or objectives of the test.

1. *Production Rate a Minute* (*PRAM*).

This method is suggested for use in connection with the measurement review lesson, in production skill building, and when carbon copies are not required. The production rate is computed as follows:

a. Determine the total words typed
   (1) Count all words in "Acceptable" problems
   (2) Count ½ the words in the "Unacceptable" problems

b. Divide the total of (1) and (2) by 30, the time of the test.

2. *Net Production Rate a Minute* (*N-PRAM*).

This method is used when carbon copies are required and in the advanced stages of skill measurement. For each error that is not corrected on both original and carbon, 15 words are deducted; if the error is erased and corrected on the original but not on the carbon copy, 5 words are deducted. N-PRAM is found by computing the gross words typed minus the total penalty for errors divided by the length of the test.

3. *Production Words a Minute* (*PWAM*).

Another form of production typewriting measurement is built into the textbook materials (*Gregg Typing, 191 Series*). Lloyd says,[17] "For recognizing the time, attention, and motions involved in making machine operations, the new counting system gives credit not only for the usual key strokes *but also for all necessary machine operations.*" These operations include such things as centering headings, underscoring, extra carriage returns, changing paper, etc. These allowances are so computed, according to the authors, that when the gross words typed are divided by the number of minutes, the results will equal the student's straight-copy rate.

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[16] Russon and Wanous, *op. cit.*, pp. 39, 40, 41, 234, 235.

[17] Alan C. Lloyd, "Now, Production Words a Minute," *Business Teacher*, 39 (November, 1961), 31.

PRODUCTION STANDARDS AND GRADING

Grading. Wanous[18] has made the following suggestions about grading sustained production work:

> It is suggested that only the timed writings that are given on production copy after a student has had an opportunity to acquire production skill be graded. There is little value in grading production tests that are given to develop skill. . . . A few carefully checked papers are of much greater value than a host of others that are given a hasty "once-over." It is suggested that this careful checking be done by the teacher.

Standards. More than ever before, business is demanding greater output from office workers. Therefore, students must be taught to realize the importance of acceptable production standards. Jessa[19] thinks that when the standard is definite and the outcome reasonable and measurable, the student accepts some responsibility for his own improvement and has more of a desire and determination to succeed.

Factors Included in Measurement. It is important that the teacher have a clear understanding regarding the factors which should be included and those which should not be considered in production measurement.

1. *Activities Which Normally Are Included in the Timing*
    - a. Reading the directions for each problem
    - b. Making machine adjustments
    - c. Assembling supplies and inserting into machine
    - d. Typing the problem
    - e. Proofreading
    - f. Erasing and correcting errors
    - g. Consulting references
2. *Activities Usually Not Included in the Timing*
    - a. Teacher directions pertaining to the problem
    - b. Obtaining and prepositoning needed supplies
    - c. Becoming acquainted with the types of problems to be typed
    - d. Calculating production rates afterwards
    - e. Discussion of solutions or problems encountered

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[18] Wanous, *loc. cit.*

[19] Marie Jessa, "Devices for Developing Production Power in Typewriting," *UBEA Forum*, 8 (May, 1954), 30-31.

Types of Standards. 1. *Percentage of Straight-Copy Speed.* A very popular method is one that sets standards on various kinds of typewriting tasks as a percentage of straight-copy speed. This is a particularly good way of determining intermediate standards since it contains an element of fairness to all students. Unless coupled with some type of arbitrary minimum production standard, however, it is not a very reliable type of terminal standard. Two examples of this type of standard will be given.

Wanous[20] gives the following production standards:

> Percentagewise, it is reasonable to expect students to attain the following rates of production in terms of their straight-copy rates: letters 75 per cent; tabulations 40 per cent; rough drafts, 50 to 60 percent; manuscripts and statistical copy, 75 per cent. Students who can type 60 words a minute from straight copy should be able to type letters at 45 words a minute; rough drafts at 30 to 35 words a minute; tabulations at 25 words a minute; and manuscripts and corrected copy containing words and figures at 45 words per minute.

Lessenberry and Crawford[21] suggest the following standards:

75 per cent of nwpm when typing — business letters
50 per cent of nwpm when typing — envelopes
40 per cent of nwpm when typing—simple rough drafts
25-40 per cent of nwpm when typing — simple tabulated reports
50 percent of nwpm when typing — stencils
60-75 per cent of nwpm when typing — manuscripts without footnotes
40-50 per cent of nwpm when typing—manuscripts with footnotes

These rates can be achieved only after the students have had the benefit of good instruction on production typewriting.

2. *Words a Minute on Various Typing Tasks.* Russon and Wanous[22] state that, "The manuals accompanying some of the textbooks used in typewriting give such production goals, but they are always given in connection with specific materials in the textbook itself. . . ." As an example, they give minimum standards suggested in one text based on

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[20] Wanous, *loc. cit.*

[21] D. D. Lessenberry and T. James Crawford, *20th Century Typewriting Manual*, Fifth Edition (Cincinnati: South-Western Publishing Co., 1947), p. 35.

[22] Russon and Wanous, *op. cit.*, pp. 55-56.

5-minute writings and on gross words a minute for passing the second-semester course:

Type of Copy	Minimum Passing Rate
Straight copy containing figures	20 GWAM
Tabulation (3-column table)	12 GWAM
Rough Draft of Report	20 GWAM
Straight copy (paragraph)	23 GWAM
Business Letter	20 GWAM

3. *Units Produced in a Given Period of Time.* This type of standard is frequently used as a terminal standard and is designed to meet typical entrance standards of business offices. Some typical production standards deemed desirable by businessmen and educators are as follows:[23]

a. Form letters and envelopes	10
b. Addressing envelopes—3 line	150-225
c. Addressing envelopes—Chain fed	200
d. Fill-ins—name, street, address, city, salutation	100-220
e. Salutation only	225
f. Business letters—20-line body with envelope	10
g. Stencils—8½ x 10 having 200 words	4-6
h. Articles	8-10 pages
i. Straight copy—60 space line, double	100 lines
j. Ediphone and Dictaphone	124 lines or 1½ cylinders
k. Printed copy	200 lines
l. Transcribing stenographic notes	125 lines
m. Addresses or labels from printed copy	141
n. Ledger sheets	111

4. *Production Point Plan.* This plan, while a suggested grading plan, of necessity involves standards of production based on points. As explained by Lloyd,[24] the plan recommends "... that the total points for

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[23] D. J. Mulkerne, "Levels and Competencies in Typewriting," *Curriculum Patterns in Business Education*, Yearbook of the American Business Education Association, (Somerville, New Jersey: Somerset Press, 1956), pp. 67-68.

[24] Alan C. Lloyd, "Grading Production Typewriting," *Business Teacher*, 45 (January-February, 1967), 22-23.

a Unit or Part be converted to a production grade in the same way you would convert a score on an objective test into a grade." The scheme embodies one to five points for each finished unit, depending on the number of errors per page and the semester in which used. The standards inherent in this plan can be flexible in accordance with the teaching philosophy and student needs.

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PROOFREADING

Proofreading is a developmental skill process. To proofread rapidly and accurately is one of the most important skills in typewriting. Therefore, teaching proofreading requires skill-building techniques just as much as the development of basic typewriting skill. For this reason, typewriting teachers must be thoroughly familiar with the specific abilities that must be developed if students are to become efficient proofreaders. Porter gives the following requisites for efficient proofreading:[1]

1. *Reading Ability*. Some students have not developed their reading ability enough to become first-rate proofreaders. Sometimes this ability improves with glasses, tachistoscopic training, or other means. At any rate, the teacher should observe his students for reading deficiencies.
2. *Knowledge of Grammar, Spelling, Punctuation, and Word Usage,* as well as the ability to use the dictionary. If a student is poor in these areas, he will not question a misspelling or a typographical error—he thinks the word looks right.
3. *Power of Concentration*. The psychological shift in attention causes errors to be overlooked—even when skilled proofreaders are checking copy. However, the better the power of concentration, the higher will be the rate of accomplishment. The proofreader must be an analyst, who immediately questions certain points that may not be evident from the copy.
4. *Sense of Responsibility*. Responsibility for proofreading should definitely rest upon the student. "There's no such thing as a small error," must be the motto of the proofreader; and every error should become a bacterium to be located by his microscopic eye. Students should not be allowed to develop the attitude, "Oh, well, if I don't find the error, the teacher will." There must come a time for the teacher to say, "Today anyone overlooking a single error will be given a zero on this piece of work." The reasoning behind this is the fact that in the hectic world of business, there is no time to play hide-and-seek: errors and oversights are penalized, often to the extent of a worker's losing his job.
5. *Satisfaction with a Job Well Done*. "Nothing succeeds like success," and this applies to proofreading, too. A conscientious teacher will try to produce top-flight proofreaders, who will take pride in accurate work.

But Brendel believes that the "Student's initial desire to learn proofreading is unlike his initial desire to learn typewriting. In fact, it is conspicuous by its absence."[2] Therefore, it follows that teachers must first of all create an interest in proofreading before they attempt to develop proofreading competence.

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[1] Leonard J. Porter, "The Typist Learns Proofreading," *Business Teaching Aid No. T-10,* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961), p. 1.

[2] LeRoy A. Brendel, "Yes, They Proofread, If—," *Journal of Business Education,* 29 (March, 1954), 241-43.

DEVELOPMENT OF INTEREST

How can typewriting teachers create an interest in proofreading? It can be made a game. A typewritten letter filled with errors, similar to the "World's Worst Transcript," is an excellent device for teaching proofreading. Examples of the "World's Worst Transcript" may be found in back issues of the *Business Education World*. In these problem letters, students can be challenged to find all the errors within a given time. The student finding the highest percentages of errors might be singled out for praise.

This project may be assigned for homework, and then students could compare their work with other students' work. Problem letters may be used once each week so that the teacher will be able to note how rapidly the percentage scores rise. This exercise is excellent for teaching students how to discover errors.

Problem letters can also be used to develop a *spirit of competition*. In a class of twenty-five, five groups or teams can be formed. Sets of different problem letters can be distributed so that each group has a different problem. Scores of the groups are based on the average percentage of each group. This teamwork will benefit each team member because he will be coached into better proofreading.

Teachers can easily prepare their own problem manuscripts, which will include errors that will challenge a particular class. Once the spirit of competition is developed, it is easy for a student to become interested in detecting errors in his own work. It can be very profitable to permit each team to search for undiscovered errors in the exercises of another team. Each team earns points based on the number of errors found. A penalty is assigned to each undetected error of the other team. This method penalizes each team rather than the individual student. Because the standing of his team is affected, the student will become aware of the importance of improving his typing and proofreading.

WHAT CONSTITUTES AN ERROR?

For a systematic pattern of checking to be developed, students must be thoroughly familiar with the types of errors that are made in typewritten copy. Brendel classifies errors as universal in nature or strictly individual in nature. Under universal errors, he includes those errors that everyone makes and overlooks when proofreading; these errors are as follows:[3]

1. Substituting near-alike words: *that for than.*
2. Substituting the wrong suffix or nonsuffix word ending: *formed for former.*
3. Omission of a syllable of a long word: *substiting for substituting.*
4. Omission of a letter or number of classification—*writing a series.*
5. Overlooking incongruity: *Referring to page 19 of a 16-page booklet.*
6. Transposing figures: *91 for 19.*

Brendel identifies individual pitfalls as those that may or may not be identical with the universal ones. They are enumerated below.[4]

1. Inverting letters in a particular word family: *teh for the*
2. Habitually inspacing by hand for paragraph indentions, with the result that the indentions may be a stroke or two too deep or too shallow.
3. Switching eyes a line down when the same word appears under itself, with the result that a whole line is omitted. Usually this occurs when the dual word is at the start of consecutive lines.

Typewriting teachers should define the most critical proofreading areas, and they should teach students to look for these critical areas. Brendel believes that the following areas are critical:[5]

1. Spelling
    a. Vowels: in word beginnings, body of word, word endings, and *ei* or *ie*
    b. Consonants: *s* or *c*, doubling, "oddballs"
    c. Prefixes
    d. Suffixes
    e. Hyphens: compound adjectives, compound nouns, compound verbs, and clarity
    f. Apostrophe: plurals (noting exceptions to rules), possession relationship
    g. Capitalization, underscoring, quoting
    h. Plurals
    i. Homonyms, Pseudohomonyms
    j. Word division
    k. One or two words (sometime, some time)

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[3] LeRoy A. Brendel, "Pinpointing Critical Areas of Proofreading," *Business Education World,* 47 (November, 1966), 17.

[4] *Ibid.,* p. 18.

[5] *Ibid.*

2. Agreement of Subject and Verb
3. Agreement of Pronoun and Antecedent
4. Correct Use of *Who* and *Whom*
5. Avoidance of Double Negatives
6. Comparison of Adjectives and Adverbs
7. Punctuation
8. Figures, Dates, Appointments, etc.

INTRODUCTION OF PROOFREADING

In all beginning typewriting classes, students are requested to read their work to find errors. During this period, the teacher can use some of the preceding devices to create an interest in proofreading. However, the most logical time for concentrating on proofreading is when erasing is first introduced. Canfield[6] is of the opinion that proofreading takes on added significance when the production phase of typewriting is begun and students are *required* to submit mailable copy.

At this point in typewriting, Canfield warns teachers not to impose stiff grading penalties for failure to proofread accurately. She thinks it is far more effective for the teacher to help students develop a responsible, objective attitude toward their work by frequently reminding them of the importance of finding and correcting their own errors. Canfield stresses the importance of developing proofreading confidence in the following statement:[7]

> The success of all production work in typewriting, shorthand, transcription, and on-the-job performance hinges to a great extent upon good proofreading ability.

IDENTIFICATION OF ERRORS

As the student proofreads his typescripts, he automatically begins to sort and classify "things to look for." The teacher aids in the completion of this classification by helping the student establish a systematic pattern for detecting errors. The teacher aids in establishing this systematic pattern by giving the student a list of errors to look for in his typewritten copies. To aid teachers in preparing this pattern, an example is given in this section.

What to Look For.[8]

1. Arrangement
    a. Placement on letterhead

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[6] Mary Canfield, "Production Typewriting Must Be Taught, Too," *Business Education Forum,* 11 (March, 1957), 26-27.

[7] *Ibid.*

[8] LeRoy A. Brendel, "Pinpointing Critical Areas of Proofreading," *Business Education World,* 47 (November, 1966), p. 32.

    - b. Paragraphing
    - c. Arrangement of letter parts
2. Technical Information
    - a. Accuracy of date of letter and accuracy of dates in body of letter as they are related to current date.
    - b. Accuracy of inside address: agreement of spelling addressee's name if used in body of letter; agreement with envelope address.
    - c. Agreement of salutation and inside address.
    - d. Typographical errors.
    - e. Misspelled words, especially individual "demons."
3. Thought Conveyance
    - a. Fragmentary sentences
    - b. Omission of words, phrases, or sentences
    - c. Capitalization and punctuation
    - d. Agreement of verb and subject, pronoun with antecedent, etc.
    - e. Substituted and transposed words
4. Figures, Dates, Amounts, etc.
    - a. Letters
        - (1) Check figure for figure with corresponding figures in original copy.
        - (2) Check accuracy of numbers, dates, appointments, addresses, and amounts in shorthand notes before transcribing (previous correspondence, files, calendar, appointment books, bookkeeping records, etc.)
    - b. Statistical copy
        - (1) Check by paper-bail method.
        - (2) Check by copyholder-proofreader method.
        - (3) Check columns on orginal copy when totals are given; add columns on typewritten copy on a listing machine, and compare these totals with those on the original copy.

METHODS OF PROOFREADING

For effective proofreading, the proofreader must observe certain techniques:[9]

1. Use a colored plastic ruler or cardboard, moving it down line for line as the work is checked.

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[9] LeRoy A. Brendel, "Yes, They Proofread, If—," *Journal of Business Education,* 29 (April, 1954), 296.

2. Read slowly, *word for word,* for sense, as well as for accuracy.
3. Indicate errors in margin nearest the error.
4. Question anything that is not clear.
5. Make no changes without approval of the copyholder.

The two specific methods of proofreading that will be discussed in this section are the Paper-Bail Method and the Proofreader-Copyholder Method.

Paper-Bail Method. When this method is used, the proofreading is done before the work is removed from the typewriter. The student follows the typewritten line along the paper bail, making corrections with pencil. As each line is proofread, he turns the cylinder. If the typewritten material is removed from the machine before proofreading, a ruler or colored cardboard can be used instead of the paper bail.

It is advantageous to have students exchange papers to recheck other students' work. These corrections are made in the margin of the copy with colored pencil or pen. If students realize their work is to be rechecked by other students, they will be careful not to leave uncorrected errors.

As soon as a student finishes his proofreading, the teacher can check his material. By checking material at a student's desk, the teacher is able to do individual remedial teaching.

Proofreader-Copyholder Method. When this method is used, students work in pairs. One student (the copyholder) reads aloud from the original manuscript, and the other student (the proofreader) checks the errors as pointed out by the copyholder. The teacher may also act as copyholder and read aloud to the class. From time to time, students replace the teacher so that he can determine whether or not individual students know what to look for while proofreading.[10]

For effective reading, the copyholder should observe the following techniques that will aid the proofreader:[11]

1. Read at an even pace to give the proofreader time to check the copy carefully.
2. Stop reading when the proofreader indicates a correction is in order.
3. Spell out unusual proper names and terms.
4. Read all punctuation marks.
5. Read figures carefully and clearly.
6. Indicate paragraphs, capitals, quotation marks, parentheses, and symbols (percent, ampersand, numbers, etc.),

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[10] *Ibid.*
[11] *Ibid.*

7. Enunciate *s's* clearly.
8. Indicate possessives and hyphenation.

In advanced typewriting, transcription, or in any subject that involves typewritten copies, only work that is 100 percent correct should be acceptable. Businessemen cannot accept work that contains errors. Therefore, typewriting teachers should establish high standards and should always require these standards of students.

Brendel gives the following reasons for errors in the final copy:[12]

1. Overconfidence in "knowing" when an error has been made while typing copy.
2. Lack of knowledge of *how* to proofread.
3. Lack of knowledge of what to look for in proofreading.
4. Carelessness, indifference.
5. Provision of adequate time for thorough proofreading.
6. Trusting to memory instead of verifying facts through a dictionary.

It is obvious that proofreading requires *thinking,* and *thinking* is hard work. However, proofreading can be taught; and the results are worth the additional effort that is required of typewriting teachers.

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[12] LeRoy A. Brendel, "Pinpointing Critical Areas of Proofreading," *Business Education World,* 47 (November, 1966), 18.

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COMPOSING AT THE TYPEWRITER

Composition at the typewriter is merely "thinking while typing." Any person who uses the typewriter for personal and/or business purposes uses it to a great extent for putting his thoughts in typewritten form. However, composition at the typewriter should not be taught until the students have developed their basic typewriting skills to an acceptable level. Levenson emphasizes this fact by the following statement:[1]

> Students must be taught to think at the typewriter after they have mastered the basic mechanics of the skill and have acquired some proficiency in its use. Naturally, they cannot be taught to compose at the typewriter too quickly or it will inhibit their speed and potential.

Therefore, after the basic skill has been developed, composition should be taught throughout the typewriting course with constant repetitive practice.

DEVELOPMENT OF COMPOSITION SKILLS

When developing composition skills, teachers should proceed from the simple to the complex. Russon and Wanous suggest the following preliminary activities before students actually compose at the typewriter:[2]

1. Direct dictation
2. Spelling drills
3. Grammar and punctuation drills
4. Syllabication drills
5. Think and type drills
6. Related learning drills

A detailed explanation of each drill is given in Chapter X, "Composing at the Typewriter," *Philosophy and Psychology of Teaching Typewriting*. These activities will provide a sound foundation for composing at the typewriter.

Rowe suggests the following plan for developing composition skills:[3]

1. *Word Level.* After the keyboard has been presented, but before capitalization is introduced, the students should type one-word answers to simple questions. For example, What is your favorite food?

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[1] Mildred Pallas Levenson, "Taking Dictation and Composing at the Typewriter," *Journal of Business Education*, 39 (March, 1964), 235-236.

[2] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting*, (Cincinnati, Ohio: South-Western Publishing Company, 1960), pp. 243-247.

[3] John L. Rowe, "Procedures and Steps in Developing Composition Skill," Mimeographed Materials.

2. ***Phrase Level.*** **After capitalization has been presented, the students should type answers to questions that require two- or three-word answers. For example, What is your favorite popular song?**
3. ***Sentence Level.*** **On the sentence level, students should state the reply in a complete sentence, no matter how simple the reply might be. Therefore, they would type the answer as follows: "My favorite popular song is ___ ___ ___."**
4. ***Paragraph Composition.*** **At this level, students will be asked to write two or three sentences in reply to the following type of question: "What was your favorite popular song last year and why?"**

   To facilitate advancement to a higher level, students should be given topic sentences that relate to their social activities, home, and personal interests, such as the following: Good manners help to create a favorable impression.
5. ***Extemporaneous Composition.*** **The teacher writes three topics on the blackboard and asks the students to select one of these topics; then, they are asked to compose a paragraph or two extemporaneously.**
6. ***Synopsis Composition.*** **The teacher reads paragraphs to the students and instructs them to condense the material into a few sentences. This type of composition requires creative and individual thinking of the students, and it also develops their ability to summarize what they have heard.**
7. ***Composition of Letters at the Typewriter.*** **Composition for vocational purposes should include various types of letters that secretaries often compose, such as letters of appointment. These letters are usually short, but must include such things as the date, how, and place of appointment. The teacher should dictate the information concerning the appointment and ask the class to compose letters making the appointment. Then students should be requested to cancel the appointment; this letter should contain the time and place of the original appointment and should express regret for the inconvenience.**

Because of the increased emphasis on production work, it is absolutely necessary for students, both vocational and nonvocational, to have adequate practice composing at the typewriter. Composition at the typewriter is a valuable skill, and provision must be made to teach this skill in the classroom under the guidance of a typewriting teacher. The plan of attack is always from the simple to the complex rather than from the complex to the simple.

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DEMONSTRATION

The statement that "one picture is worth a thousand words" applies to typewriting instruction. A survey of the literature pertaining to typewriting methodology during the last decade reveals that demonstration, as an effective teaching device, is being emphasized more than ever before. Typewriting authorities believe that demonstration is one of the most effective audio-visual aids used in typewriting, especially beginning typewriting. In fact, Lloyd believes that "the best instructors *use* their machine *every* period."[1]

Specifically, demonstrations are necessary for effective typewriting instruction because they clarify the purposes of classroom activities. Robinson believes "that a good teacher with a good demonstration can develop better stroking skill than can the most intricate rhythm machine."[2] He further emphasizes the importance of demonstration by saying that "there is no better metronome than a teacher setting the pace at a demonstration typewriter."[3]

Rahe[4] in his article, "Implications of Research in Typewriting," points out that students who are taught the basic fundamentals of typewriting skill by teacher demonstrations and explanations master the keyboard in less time and master it more effectively than do students who are not given such instruction.

For many years, Lessenberry has emphasized the importance of demonstration in typewriting classes. Repeatedly, he has stated that "show-how is far better than tell-how."[5] He also believes that if effective demonstrations are used in beginning typewriting classes, students will learn control of the operative parts in a minimum of time, that the patterns of stroking rate will be set, and that a picture of good techniques will be provided.

Therefore, "the quality aspect of typewriting grows out of teacher attention to the process—the act of typewriting—rather than to the product—what is typed."[6]

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[1] Alan C. Lloyd, "Three Checkpoints for Your Typing Classroom Furniture," *Business Teacher,* 40 (November-December, 1962), 39.

[2] Jerry W. Robinson, "The Problem of Typewriting Rhythm," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, March, 1967), p. 50.

[3] *Ibid.*

[4] Harves Rahe, "Implications of Research in Typewriting," *National Business Education Quarterly,* 29 (March, 1961), 8.

[5] D. D. Lessenberry, "Teaching the Letter Keyboard," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 21-24.

[6] Lawrence W. Erickson, "Contributing to Quality Work Through Typewriting," *American Business Education,* 18 (December, 1961), 76.

ELEMENTS OF EFFECTIVE DEMONSTRATIONS

Previously, it was pointed out that quality in typewriting is a result of the teacher's attention to the process. However, before a teacher can "show-how," he must be an expert typist and must be familiar with the psychological principles of skill building.

Rapid, expert demonstration gives students confidence in the teacher. However, the tempo of the demonstration is determined by the tempo of the class. At times, slow-motion demonstrations should be given; and at times, the pace should be increased. This type of demonstration gives students the opportunity to *see* and *hear* how they should type.

Some demonstrations may have to be presented several times; and for some students, demonstrations may even have to be given at the individual typewriter. No matter where demonstrations are given, teachers must always remember that students learn many things by imitation and that demonstrations provide successful patterns for students to follow.

For effective teacher demonstrations, a demonstration stand must be provided. Rowe[7] recommends two demonstration stands, one for an electric typewriter and one for a nonelectric. The stand should be movable; it should rotate, and the height should be adjustable. The top of the demonstration stand should be large enough for a copyholder, a textbook, and a typewriter.

For effective typewriting demonstrations, Robinson[8] recommends that the following principles be considered.

1. Demonstrations should be planned. The plan should include answers to *what, when, where, why,* and *how.*
2. Demonstrations should be brief.
3. Demonstrations should be practiced before the presentation in class.
4. Demonstrations should be given so that all students can *see* and *hear* them.
5. Demonstrations should emphasize only one technique at a time or related techniques.
6. Demonstrations should be accompanied by brief explanations.
7. Demonstrations should be followed immediately by student imitation and then by the identification of successful motions.

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[7] John L. Rowe, "The First Day in Teaching Typing," *Business Education World,* 44 (December, 1963), 24.

[8] Jerry W. Robinson, "Procedures for Refining Typewriting Techniques," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 192.

Practically everything in the beginning stages of typewriting can be demonstrated effectively. However, typewriting authorities believe that the following techniques need to be taught and retaught:

1. Throwing the carriage
2. Reaching for tabulator key
3. Straightening paper
4. Inserting and removing paper quickly
5. Shifting for capitals
6. Changing ribbons
7. Centering the paper
8. Fingering action
9. Automatizing warm-up drills
10. Typing at various speeds to illustrate rhythm and sound

From the preceding list of techniques, it is obvious that teachers must emphasize correct techniques in *all* typewriting classes.

Robinson, in his article, "Procedures for Refining Typewriting Techniques," emphasizes the fact that demonstration in the typewriting classroom fulfills the following conditions of learning:[9]

1. The student is made ready by an intrinsic desire to emulate expert performance.
2. He is given an immediate goal to strive toward and a reason for attaining a certain level of performance.
3. He is given the opportunity to practice repetitively in a variety of combinations the techniques to be refined.
4. He is emotionally satisfied by working toward a clearly defined goal and by the praise of the teacher for even limited evidence of improvement.

Therefore, demonstration in the typewriting classroom is one of the most valuable methods that can be used in the development of typewriting techniques, control of the operative parts, and improvement of other typewriting skills. John Ruskin once said that "teaching is a painful, continual, and difficult work to be done by kindness, by watching, by warning, by precept, by praise, but—above all—*by example.*

TEACHERS DEMONSTRATE—STUDENTS IMITATE

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MOTIVATION IN TYPEWRITING

Today, motivation is one of the most frequently used words in America. It is especially important in a subject where results can be easily measured. In typewriting, which is studied either for personal use or vocational reasons, it seems that the problem of motivation is automatically solved. Certainly, students think that typewriting will be extremely beneficial in their personal lives and/or profitable in earning a living, which gives the subject a strong intrinsic appeal. Therefore, students usually begin typewriting with great enthusiasm and eagerness to learn.

But there are two factors that may soon cause this initial enthusiasm to disappear. First, the fact that some students begin typewriting in the tenth grade means that it will be three years before they will be able to use it for vocational purposes. This period of time is rather long to expect an immature person to maintain voluntarily the necessary interest so that maximum effort will be exerted. Second, the learning of any skill requires a great deal of drill that can become uninteresting and deadening unless the teacher provides sufficient variety and stimulation so that some of the monotony is eliminated. However, no activity is considered work or drudgery if an individual is intensely interested in the activity. Therefore, proper motivation is one of the most important phases of successful typewriting instruction. Rowe gives the following basic principles of motivation in typewriting:[1]

1. All students should profit from a motivation device.
2. A variety of motivation devices should be employed.
3. All aspects of skill should be covered in the use of motivation.
4. The maturational development of the student is an all-important consideration in motivation.
5. A knowledge of objectives, goals, and growth will greatly promote motivation—both on the part of the teacher and on the part of the student.
6. Intrinsic motivation is more effective than extrinsic motivation.
7. The teacher is a dominant force in all motivation.
8. Motivation should be positive rather than negative in nature.
9. Desirable physical facilities facilitate motivation.
10. A motivation device should be easy to administer.
11. Overmotivation may develop needless frustration when the student reaches his natural ceiling.
12. A motivation device should foster the improvement of the student's character and personality traits and promote proper attitudes.

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[1] John L. Rowe, "Using Motivation in Typewriting," *Business Education World*, 44 (May, 1964), 29-31, 35.

MOTIVATION AND THE TYPEWRITING TEACHER

Because beginning typewriting students are highly motivated, teachers must capitalize on that interest; they must provide actual experience at the typewriter the *first* day. Teacher enthusiasm creates student enthusiasm. This enthusiasm will lead inevitably to the development of a dynamic, wholesome learning atmosphere in the classroom.

Learning activities are most effective when they are means of attaining goals. Short-term goals are better than long-term ones; clear goals are better than vague ones; and goals closely associated with the job at hand are stronger than remote goals.[2] Because of the importance of goals, teachers must set goals so that they will be able to plan and organize their work effectively; the goals must be worthwhile and obtainable, and students must understand the purpose of each activity in relation to the goals. However, Anderson[3] believes that no matter how scientifically a lesson is planned and presented, unless the teacher and the students are really anxious to develop the maximum degree of skill possible every single period, much of the potentialities of the course will be lost.

Both teachers and students must realize that success is a vital factor in the learning process; success breeds success; nothing succeeds like success itself. Nowhere are these statements more applicable than in the typewriting classroom. Recognition of success, no matter how small, sets the stage for bigger success. Positive suggestions are stronger than negative ones, and praise is stronger than reproof. Teachers must use the technique of giving praise. They must find something good in students' work, no matter how slight the improvement may be. When students are praised, their response and extra efforts can actually be felt. Therefore, all students must experience some degree of success; they will do well whatever they find that they can do well. The master teacher will use his ingenuity and integrate positive motivational incentive into typewriting instruction.

Even though intrinsic motivation is superior to extrinsic motivation, Wiper[4] believes that extrinsic motivational devices have some value because they provide concrete evidence of attainment of worthy goals.

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[2] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting,* (Cincinnati: South-Western Publishing Company, 1960), p. 23.

[3] Ruth I. Anderson, "A Good Lesson in a Skill Subject," *Business Teacher,* 27 (September-October, 1949), 24-25.

[4] Robert E. Wiper, "Motivation in Typewriting," *Methods of Teaching Typewriting,* Yearbook of the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1965), p. 172.

Some of the other benefits that are derived from extrinsic motivational devices are stated in the following paragraph:[5]

> . . . . They also help change the students' attitude toward drill from one of boredom and drudgery to interesting activity and fun. The certificate issued gives tangible evidence of vocational proficiency and is a valuable aid in securing employment.

Therefore, the typewriting teacher's major responsibility is the effective use of motivational devices that will help students develop an acceptable typewriting skill. This statement implies well-planned class procedures, dynamic teaching, extensive use of demonstrations, clearly defined standards with goals based on business requirements, constructive understanding of each individual, and vital presentation through the use of visual teaching devices. Howell[6] believes that the teaching devices, which are enumerated above, are the life of a good teaching situation.

INTRINSIC MOTIVATION AND EXTRINSIC MOTIVATION

Intrinsic motivation is functionally and organically related to the activity; extrinsic motivation is artificially related to the activity.[7]

Types of Intrinsic Motivation

1. Recognition is a basic need of all students. Therefore, recognition for outstanding achievement is an excellent motivating device.
2. Problems that are realistic develop interest and impel students to reach their goals. If students see the immediate need for learning because the activity has real value to them personally, the experience will be more effective than something artificially created for them.
3. Desire is a strong intrinsic motivational device. Teachers must increase the desire of students to do quality work, to develop seriousness of purpose, and to develop emotional stability and confidence in themselves.

Extrinsic Motivation in Typewriting

Numerous methods have been used to motivate typewriting students. However, a teacher must experiment to determine the motivating devices that are most effective for each class. These devices must be purposeful and appealing, and they must be used to sustain the student's interest and drive.

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[5] *Ibid.*

[6] Doris Howell, "Motivating Devices in the Learning of Typewriting," *Business Education Forum*, 5 (March, 1951), 31.

[7] Russon and Wanous, *op. cit.*, p. 124.

The following types of extrinsic motivation are used in the typewriting classroom:

1. Certificates, award pins. These devices are used on all skill levels.
2. Films for motivating devices when teaching the keyboard; arrangement of letters; business forms and papers; placement and handling of materials; and typewriting shortcuts and techniques.
3. Individual progress charts.
4. Outside speakers.
5. Contests.
6. Demonstrations.
7. Bulletin boards.
8. Honor rolls.
9. Games.
10. Bonus work.

The teacher should not spend an excessive amount of time in the use of games and contests for motivating purposes. Their occasional use breaks the monotony and capitalizes on the enthusiasm and interests of students.

It is obvious that typewriting teachers must exercise great care in the selection of learning materials, in organizing them, and in presenting them in the proper sequence. Varied motivational devices should be used to keep the students interested and working at their optimum ability. Only when students see a relationship between the motivating device and the goal to be achieved will it be successful.

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INDIVIDUAL DIFFERENCES

Numerous factors affect the learning ability of typewriting students. Because there are many difficulties involved in the learning process and because other variables are projected into the manual and mental efforts that are expended in typewriting activities, provision must be made in any teaching plan for individual differences. These differences may be broadly classified as (1) native mental ability, (2) personality, and (3) physical ability. However, many gradations will occur within each of these groups. Therefore, for effective teaching, an objective analysis should be made to determine individual differences within a class. On the basis of this analysis, the teaching methods and materials should be adjusted to meet the student's needs.

DIFFERENCES IN MENTAL ABILITY

Basic to all growth in learning and improvement in skill is an individual's native mental ability. In any typewriting class, there will be differences in mental alertness and general intelligence. In varying degrees, students can make associations and apply knowledges and skills. However, because of special mental or physical handicaps, a few students may have difficulty acquiring even a low degree of skill. For these students, special work within their range of abilities may be given. However, a teacher cannot devote a major portion of a regular typewriting class to exceptional students. A special class should be provided for students with special mental or physical handicaps.

DIFFERENCES IN PERSONALITY

Another factor that will vary in all classes is personality. A teacher may expect the personal temperament of students in a class to range from the extreme introvert to the extreme extrovert. The teacher will easily recognize the "show-off" who must always have attention; the timid one who fears that he cannot succeed; the overly conscientious one who always listens attentively but who must always have explanations repeated; the sensitive one who becomes perturbed when he makes his first attempts; the anxious one who is always afraid that he will not be able to do the work; the pessimist; the optimist; and other types. In teaching a group of such mixed personalities, there are no fixed rules to follow. The teacher's major problem is to get each student's attention and to induce him to exert his maximum effort. Even though there are many individual differences in one class, the teacher should plan activities for the whole class. Then, while the majority of the students proceed with the assignment, the teacher can help the student who has an individual problem.

In addition to the differences in personal temperament, learners will also vary in their responses to stimuli. The interested and energetic learner will vary his activities, creating and discarding, until correct habits have become fixed. The efforts of the learner who has an attitude of indifference and who uses little energy and concentration will result in nervous reactions that will produce incorrect responses and a blundering typist. It is the teacher's responsibility to help each student understand how his attitudes and his personality difficulties affect his work. Together, they should work out a plan that will modify his personality and direct his energies so that he will learn to type in spite of his handicaps.

Even though a student may or may not have an indifferent attitude, he must be aware of his present level of skill; and he must also be informed about the level that he can attain in the future. Each student should have complete information about the goals for each semester; he should be able to compare his work with that of others in the class; he should know the actual skills that have been attained by experts; and he should be familiar with reliable norms so that he can judge his work. If a student can be induced to understand the reasons for conditioning practices, technique drills, rhythm drills, speed drills, etc., his interest will be aroused. If he is genuinely interested in his own improvement, he will be pleased when he does the things that lead to success; and he will be anxious to improve after incorrect responses.

The teacher's major problem is to give the student an incentive; to create interest in improvement of basic typewriting skill; to inspire the student to believe in his ability to acquire skill; and to exert constant, tactful pressure to bring about attention and concentration.

DIFFERENCES IN PHYSICAL FACTORS

In addition to differences in mental ability and personality, a learner's physical condition directly affects his ability to acquire a skill. In most typewriting classes, a teacher expects occasional lapses in spontaneous attention and effort. However, when these lapses seem to be widespread and frequent, the teacher should (1) check on the physical condition of the room and the equipment and (2) evaluate his own mannerisms and personality.

When the slump occurs in an individual student, the teacher should observe physical factors such as defects in vision or hearing, posture at the machine, ability to read, neural responses to stimuli, inertness, and evident fatigue; students differ widely in susceptibility to fatigue and in the power to recover from fatigue. However, through careful planning the teacher can prevent unnecessary fatigue.

When a student's physical condition is such that stimuli result in wrong habits and responses, trouble and delay in learning effort occur. In a tactful manner, the teacher should help the student understand what is causing his problems. If a student continues to have problems, the teacher should advise him to change to another level of work so that he can be successful or to cease temporarily his learning efforts.

HANDLING INDIVIDUAL DIFFERENCES

Because of the wide range of abilities in a typewriting class, it is most difficult for a teacher to adjust work requirements. However, any instructional plan must be made for the class as a whole and not for just a few students. It is an accepted truism that the same amount and quality of work cannot be required of all students. For this reason, some practices that are commonly used to provide for individual differences will be given in the following section.

RECOMMENDED PRACTICES

1. Encourage student to review past work and to endeavor to increase speed and accuracy on problem-type work.
2. Assign supplementary work for improvement of speed and accuracy to the best student while the other students are striving to finish the minimum amount of work.
3. Use the production typing plan. The teacher should provide, if not provided in the textbook, enough exercises in connection with each type of exercise so that all students will have more material than they can finish in a class period. Establish quality and quantity standards. Give timed production tests and endeavor to meet business standards. This plan, sometimes called the variable assignment plan, is the most effective method for handling individual differences. The best students are encouraged to work to full capacity; they have the opportunity to increase skills and knowledge; and their typewriting power is greatly improved. At the same time, the slow learners will improve their typewriting power within their individual capacities.
4. Provide adjustable tables and chairs.

QUESTIONABLE PRACTICES

1. Permitting fast learners to begin the next exercise or lesson. This method destroys group instruction.
2. Encouraging fast learners to do outside work for teachers, school office, etc. A *limited amount* of outside work that has

high instructional value can be justified, but definite control over this work should be exercised.

3. Allowing students to do personal typewriting after the assigned work has been finished. A student's completion of all the assigned work before the period ends indicates that the assignment was not sufficiently well planned to challenge students with a wide range of abilities.
4. Allowing the fast learners to repeat the unit of work until all members have attained the minimum skill. This method neither challenges the above-average student nor improves his typewriting skill.
5. Permitting students, after an assignment has been completed, to use the remaining time for studying other subjects. This non-typewriting activity indicates that the assignment was too short, that other subjects are more important than typewriting, and that the students are expert typists and cannot profit from further practice; also, it may cause students to hurry through an assignment so that time will be available for another subject.

Because of individual differences in *all* classes, Crawford believes that teachers should have the following qualifications:[1]

> Teachers should be unusually well equipped to adjust their teaching methods and materials to accommodate the distinctive learning characteristics of the students involved. And ability to harmonize classroom method with learner attributes requires professional understanding of how people of different age levels, of different capabilities, of dissimilar interests, of various motivations learn motor skills most effectively.

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[1] James T. Crawford, "Discriminative Methodology—A Critical Factor in Teaching Typewriting," *Business Education Forum,* 22 (January, 1967), 19.

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EVALUATION IN TYPEWRITING

DEFINITION

Evaluation may be defined as analysis of the total typewriting performance of the student in terms of the objectives or goals established for the course. In a narrower sense, evaluation may be applied to any specific factor in typewriting performance, such as techniques, keystroking, speed, accuracy, production, and the like.

PURPOSES OF EVALUATION

Evaluation in typewriting is designed to serve one or more of the following purposes:

1. To diagnose student weaknesses and provide data for remedial teaching
2. To measure student achievement in terms of the objectives of the course
3. To serve as a basis for determining grades for administrative purposes
4. To motivate students to maximum effort
5. To determine the extent to which students meet vocational standards
6. To evaluate the effectiveness of teaching

METHODS OF EVALUATION

In general, there are two methods by which changes in typewriting behavior may be evaluated.

1. *Subjective Evaluation.* Certain aspects of typewriting behavior lend themselves to subjective methods rather than objective methods of evaluation. Method of Evaluation: *Observation.*

a. *Techniques.* Only by observing the student at work can the teacher evaluate techniques. Therefore technique evaluation must be done during the class period. To assist the teacher in rating all students consistently and to give as much objectivity as possible to the evaluation, a technique rating sheet should be used. For an example of a suggested rating sheet, see the section entitled *Techniques.* As stated by Anderson and Pullis,[1] "If some form of rating scale is used to evaluate techniques, it is recommended that each student be given a copy. The student then has a constant reminder of the factors affecting the development of correct techniques and may use the chart from time to time in evaluating his progress."

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[1] Ruth I. Anderson and Joe Pullis, "Measurement and Evaluation in Typewriting," *Methods of Teaching Typewriting,* Yearbook of the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1965), pp. 183-200.

Likewise Erickson[2] says, "Students can often develop a better understanding of technique patterns if a technique check sheet is given to each student and kept on his desk so that the teacher can call attention to needed remedial work in terms of building appropriate techniques."

While authorities do not agree on how long technique rating sheets should be used, Russon and Wanous[3] state, "Although most grading scales do not specifically call for technique ratings as part of the grade after the first four or five weeks, it is strongly recommended that the use of the technique check sheet be continued at least throughout the first semester and that part of the final grade for the semester be based on it." Some maintain that when properly emphasized techniques will become sufficiently set or automatized by the end of the first semester and thereafter no further attention to them or evaluation of them need be given.

It is recommended however that techniques be carefully stressed and formally evaluated throughout the first two semesters and that sufficient review and motivation be given to see that a high level of proficiency is maintained throughout the third and fourth semesters.

b. *Work Habits and Traits.* The only method of evaluating changes of behavior in this aspect of typewriting is through observation of the student from day to day. Lamb[4] says that, "Evaluation of student attitudes is likely to be a matter of guesswork—or, even worse, of personal reaction to the student—unless you *spell out the evidences of the attitudes* established at each grade level as the basis for evaluation." In evaluating the trait, "a cooperative attitude in promoting the general welfare of the group," she suggests the following plan:

"In order to merit an A or B (superior) grade, the student should consistently

(1) Be sufficiently cooperative to arouse a cooperative spirit in others.

(2) Work in such a way that he causes minimum distraction and inconvenience to others.

(3) Help the teacher and his fellow classmates when they request help under proper circumstances.

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[2] Lawrence W. Erickson, "Evaluating Student Performance," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 96.

[3] Allien R. Russon and S. J. Wanous, *Philosophy and Methods of Teaching Typewriting,* (Cincinnati: South-Western Publishing Company, 1960), p. 389.

[4] Marion M. Lamb, *Your First Year of Teaching Typewriting,* Second Edition, (Cincinnati: South-Western Publishing Company, 1959), pp. 162-164.

(4) Clean his typewriter at least once a week, and leave it always in usable condition.

(5) Use supplies carefully so that there is a minimum of wastage.

(6) Assume a generous share of the responsibility for the effective management of classroom routine, etc.

The difference between grades A and B is one of degree of superiority."

Likewise she spells out degrees of evidence of the trait for grades of C, D, and F.

2. *Objective Evaluation.* The performance and knowledge aspects of typewriting behavior must be evaluated objectively. Method of Evaluation: *Tests.*

a. *Knowledges and Understandings.* Such information as parts of the typewriter, spacing rules, principles of centering, parts of the letter, rules of syllabication, possessive case, numbers, punctuation, and the like may be effectively evaluated by various kinds of objective tests. The chief advantage in using such tests is that more comprehensive coverage of details can be effected than by application or performance tests. Objective tests are available for use with one or more of the leading textbooks.[5]

As Morse[6] states, "Objective tests should supplement, not supplant, the widely used methods of grading in typewriting (speed tests, accuracy tests, mailable copy evaluation, or production output measurement). Russon and Wanous[7] believe that, "The principal use of objective tests in typewriting should probably be as learning aids . . . But too much weight should not be given to the scores on such tests." Anderson and Pullis[8] call attention to the importance of knowledges in saying, "Students will continue to regard typing usages and knowledges as unimportant unless the typing teacher includes these items among the factors considered in measuring and evaluating progress in the typing course."

b. *Typewriting Performance.* Speed and accuracy of key stroking and application of basic skills to problem-solving situations are the chief kinds of typewriting behavior evaluated by performance tests.

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[5] See *Learning Guides and Working Papers for GREGG Typing, 191 Series,* by Rowe, Lloyd, and Winger (New York: Gregg Publishing Division, McGraw-Hill Book Company, 1962).

[6] Glynn E. Morse, "Objective Testing in Typewriting," *Journal of Business Education,* 40 (May, 1965), 358.

[7] Russon and Wanous, *op. cit.,* p. 397.

[8] Anderson and Pullis, *op. cit.,* p. 193.

(1) *Basic Key-Stroking Skill.* Some of the methods used to evaluate key-stroking skill on straight copy are discussed below. Balsley[9] says that "straight-copy measurement in the beginning and intermediate stages of typewriting skill development is an important way of evaluating basic typewriting skill. Furthermore, basic skill measures are essential to help determine the students' readiness to begin application problems."

(2) *Correct Words A Minute (CWAM).* This method involves deducting words in which errors are made from the total words typed and dividing by the length of test. The method arose as a result of the disadvantages inherent in the NWAM method of computing speed, but is seldom used at present. Since there is so little difference between rates expressed in CWAM and GWAM, the method has given way to GWAM for the most part.

Net Words a Minute (NWAM). NWAM is computed by deducting a penalty of ten words for each error from the total gross words and dividing by the length of the test. The ten-word penalty was based on an arbitrary assumption that it has the same effect on the net speed as the time lost in erasing the error would have. The ten-word penalty has a disproportionate effect on students who have different gross speeds, and it does not approximate the time it would take to correct an error. Nevertheless, it has many adherents because it presents a convenient single composite score for key-stroking ability and does give a better rough picture of production ability than does GWAM. One disadvantage presented by Erickson[10] is that, "A NWAM rate cannot be used for diagnostic purposes as the teacher plans appropriate practice for his students. The teacher needs to know the gross stroking rate as well as the total number of errors made by each student if he is to prescribe intelligently for that student."

Net Words A Minute with Sliding Penalty Scale. A variation of NWAM in which the penalty increases from one to ten gross words as the length of test progresses is favored by many teachers who prefer NWAM to GWAM. It has the advantage of not discouraging the student by the severe penalty of ten gross words an error on short tests and prevents the necessity of transition from GWAM to NWAM in advanced typewriting. If NWAM is to be used, it is recommended that the sliding scale variation be used in all semesters.

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[9] Irol W. Balsley, "Evaluating Typewriting Performance Using Mailable-Words-A-Minute," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 91-94.

[10] Lawrence W. Erickson, "Modes of Instruction and Their Meaning," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 12.

Gross Words a Minute (GWAM). GWAM is obtained by dividing the total gross words typed by the length of the test. There is no penalty for errors. It has an advantage of presenting a true picture of key-stroking speed. Unless combined with some method of error control, however, it may unduly encourage speed at the expense of accuracy. GWAM has been criticized on the grounds that a student who types at a high rate of speed is held to the same error limitation as one who types at a low rate. Modifications[11] of this plan have been devised to eliminate its weaknesses, but apparently none have proved entirely satisfactory. If GWAM is used, it is recommended that it be used throughout the typewriting program rather than changing from GWAM to NWAM.

Mailable Words A Minute (MWAM). This plan, based on a research study by Balsley,[12] penalizes the typist 26 seconds for each error. Scores may be computed by referring to prepared tables which are available or by adding 26 seconds for each error made to the length of the test before dividing into gross words. The latter method is too complicated. One criticism of the method is that it assumes that all students are equally proficient in erasing. Further, if erasing is properly taught, it should not require 26 seconds to make an erasure.

Adjusted Typing Score (ATS). A plan advocated by Grubbs[13] starts with the base of gross words to which is added a bonus for each perfect line typed. This total is divided by the number of minutes in the test to obtain the average per minute, called ATS. Grubbs states that the "bonuses for correct responses are, therefore, both awards and goals."

The teacher should use whichever plan he prefers that is most consistent with his philosophy of evaluation, but he should be aware of both the advantages and disadvantages of the plan he uses.

(2) *Application of Skill.* Methods of evaluating the application of basic typewriting skills to problem-solving situations (currently called production typewriting) are discussed in the section entitled "Production Typewriting."

(3) *Proofreading.* More attention needs to be given to developing competence in proofreading. One of the ways to develop a more serious attitude on the part of the students to proofreading skill is to evaluate it

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[11] S. J. Wanous, "An Analysis of Some Evaluative Measures of Typewriting Performance," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 85.

[12] Irol W. Balsley, *A Study to Determine the Validity of Some Methods of Measuring Straight-Copy Typing Skill* (Ruston, Louisiana: Department of Business and Economic Research, Louisiana Polytechnic Institute) November, 1956, 59 pp.

[13] Robert L. Grubbs, "To Circle or Not to Circle," *Business Teacher,* 44 (March-April, 1967), 8-9.

and make it a part of the grade. The procedure recommended by Erickson[14] is as follows:

> Proofreading skill should be evaluated and graded. There is no easy solution to this problem. It is suggested that each week, after proofreading of selected papers is started, the student be assigned a proofreading score of 100. For each error that he misses in proofreading his own work, a deduction of from 2 to 5 points is made from his proofreading score. His final proofreading score on each Friday, for example, may be recorded and used as a basis for evaluating his proofreading competency.

Some authorities feel that the positive approach should be used in evaluating proofreading. Wanous and Russon[15] state, "It may be that one of the reasons for poor proofreading in typewriting is that successful proofreading is not rewarded, but is penalized." However, as desirable as this method may seem, no concrete satisfactory plan of rewarding effective proofreading has appeared.

TESTS

As previously discussed, testing is one method of evaluating student growth in typewriting. It should be emphasized that testing is only one method, but it is the most common procedure for evaluating certain aspects of typewriting behavior.

Types of Tests. Each type of test is designed to measure one aspect of typewriting behavior. Comprehensive testing requires the use of many different kinds of tests, providing evaluation in as many typewriting activities as possible. The three types of tests commonly used in typewriting are as follows:

1. *Straight-Copy or Timed Writings.* Straight-copy test measure keystroking speed, an important component of typewriting skill. Key-stroking speed is a measure of the student's production potential and is an indicator of the student's readiness for instruction in production typewriting. Timed writings have their place in typewriting instruction, but their use is often abused by using them as busy work.

There has been a steady reduction in the length of timed writings during the past two decades, with many authorities currently favoring five minutes for all timings. Some even favor three-minute writings, maintaining the results present just as valid relative class rankings as longer tests give. A word of caution is in order. Since employment tests are frequently ten minutes in length, the longer tests should not be discontinued in advanced typewriting.

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[14] Lawrence W. Erickson, "Evaluating Student Performance," *Practice and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), p. 98.

[15] Russon and Wanous, *op. cit.,* p. 156.

2. *Objective Tests.* The importance of objective tests in evaluative processes is often overlooked. They not only measure the student's knowledge and understandings but they motivate study in this important factor of typewriting competence.

3. *Production Tests.* Tests and standards in production typewriting are discussed in the section entitled "Production Typewriting."

Prepared Tests. Printed tests provide a valuable source of testing materials for all three types of tests described above. Not all printed tests are standardized, but they should not be selected on this criterion alone. Many printed tests provide norms which enable the teacher to compare class achievement with results on a national scale.

1. *Standardized Production Typing Tests,* by Ruth I. Anderson and Margaret H. Johnson. This series includes a weekly production test for a two-year typewriting program, published monthly in the *Business Education World,* beginning with the November, 1966, issue. Specific scoring instructions, a suggested grading scale, and decile scores are provided with each test.

2. *National Business Entrance Tests.* These tests are designed to measure employability and, therefore, measure most of the major aspects of typewriting skill and knowledge. They provide a reliable measure of typewriting competence and teaching effectiveness.

Two series are available—the General Testing Series intended for both school and office use, scored by the examiner; and the Official Testing Series, administered at National Business Entrance Testing Centers. In addition to typewriting, other subject matter classifications included in the series are stenography, general clerical, bookkeeping, and office machines.

The National Business Entrance Tests are available from the National Business Education Association, 1201 Sixteenth Street, N. W., Washington, D. C. 20036.

3. *Students Typewriting Tests.* These tests are end-of-semester examinations to be used for each of the four semesters of a two-year course. Designed for use with any textbook, they combine straight copy, business letters, rough drafts, tabulations, and other tasks commonly included in production typewriting.

The Students Typewriting Tests may also be obtained from the National Business Education Association, 1201 Sixteenth Street, N. W., Washington, D. C. 20036.

4. *Achievement Tests,* Nos. 1-16, correlated with *20th Century Typewriting.* Eighth Edition, published by South-Western Publishing Company, 5101 Madison Road, Cincinnati, Ohio. These are performance tests consisting of timed writings, business letters, manuscripts, rough drafts, tabulations, and all types of office typing problems.

5. *Typewriting Speed Test.* Straight-copy speed test designed for two 5-minute or one 10-minute writing. *Typing Production Tests, Junior and Senior.* These tests are timed for 5 or 10 minutes and may be submitted for awards to the Gregg Awards Department. Both the speed tests and production tests appear monthly in *Today's Secretary,* published by Gregg Division of McGraw-Hill Book Company, 330 West 42nd Street, New York, N. Y. 10036.

6. Other Sources of Printed Tests

Teachers interested in various kinds of aptitude, employment, and practical tests of vocational competence in typewriting are urged to explore available tests. The following is a selected list:

a. Science Research Associates, Inc.
57 West Grand Avenue
Chicago, Illinois

(1) *SRA Typing Adaptability Test*
(2) *SRA Typing Skills Test*

Mulkerne[16] points out that the syllabic intensity of the *SRA Typing Skills Test is* 1.73 as compared with 1.4 found in most typing texts, and as a result some students who are considered good students by their teachers do not score well because of the increased difficulty of the material and also because they fail to follow directions. Therefore, students need experience in taking such employment tests which they may encounter in seeking their initial jobs.

b. World Book Company
441 West Peachtree Street, N.E.
Atlanta, Georgia 30308

Thurstone Employment Test: Examination in Typing

This test, which is used by many firms, includes typing from rough draft, tabulating on a columnar form, tabulating from unarranged copy, and a 48-word discrimination test.

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[16] Donald J. Mulkerne, "What Do Typists Do?" *Business Education World,* 42 (September, 1961), 24-25, 28.

c. Public School Publishing Company

345 Calhoun Street
Cincinnati 19, Ohio
Commercial Education Survey Tests, Junior and Senior Typewriting by Jane Clem

d. Psychometric Techniques Associates

413 Morewood Avenue
Pittsburgh 13, Pennsylvania
The Tapping Test has been designed to predict success in typing and other keyboard operations.

e. The H. M. Rowe Company

Baltimore 17, Maryland
Typewriting Technique Test is available along with a variety of testing materials.

GRADING AND STANDARDS

Grades and standards are inseparably tied together. Grades should reflect the degree to which standards are met. Further, standards are the end products or the achievement manifestations of objectives and must be in agreement with them. For the most part, each factor comprising the grading plan should have a corresponding course objective.

What Is A Grade? Lamb[17] says, "We may say that a grade properly arrived at according to a plan known to pupils should be an indication of achievement defined by the teacher and understood by pupils and parents."

Basic Principles for Grading in Typewriting

The following basic principles were developed by Rowe:[18]

1. Each typewriting student should be informed of the criteria for grading.
2. All phases of typewriting skill should be combined in determining the typewriting grade.
3. The established goals should be attainable by nearly all students.
4. An improvement in any phase of skill is an important consideration when evaluating a student.
5. The student should be made aware of both intermediate and terminal goals.
6. Each student should be made aware of procedures to be employed in attaining a goal.

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[17] Lamb, *op. cit.*, p. 174.
[18] John Rowe, Mimeographed Materials.

7. Goals should be flexible so they can be adapted to the group and to the individuals using them.
8. Goals should be raised gradually allowing sufficient time for most students to attain them.
9. The final grade in typewriting should indicate an ability to use the skill in producing mailable copy.
10. The final grade in typewriting should serve as a guidance measure.

PAPER CHECKING AND GRADING

Papers must be checked and graded in order to arrive at a grade. As Culver[19] states, "Many teachers today, particularly beginning teachers, need help in determining the amount of grading that should be done in typewriting classes." Too often teachers become bogged down in excessive paper grading. This condition arises from the belief that all the work produced by the students must be graded as well as from the confusion that exists regarding the functions of checking and grading. Culver[20] clarifies the latter point in saying, "A typing problem if worth assigning is worthy of being *checked* by the teacher. An important distinction is made, however, between the terms "checking" and "grading." *Checking* a typing problem means that a problem is quickly surveyed by the teacher with his attention directed to only one or two aspects of the problem . . . *Grading* or evaluating a typing problem means that the teacher goes over a problem very carefully and assigns a grade to it."

Grades should be arrived at by the sampling process. Such grades are just as reliable as those produced by grading all the papers. Typewriting papers need be graded only once or twice a week in each class. In the weekly plan of teaching production typewriting, Russon and Wanous recommend grading only on the fifth day of the cycle (See section on "Production Typewriting").

FACTORS DETERMINING GRADES

There are three basic procedures to follow in arriving at a grade. They are as follows:

1. Determine the factors (essential components of typewriting competency) which should comprise the grade.
2. Determine the relative weighting of each factor.
3. Combine the values assigned each factor into a single composite score.

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[19] Gordon F. Culver, "Handling Problem Work in Typewriting," *Journal of Business Education*, 37 (January, 1962), 147-148.
[20] *Ibid.*

Principles Governing the Factors

1. All factors essential to vocational competency should be included in the grade and must of necessity be weighted.
2. The factors which comprise the grade should not be so weighted that the student will pass in spite of being seriously deficient in one or more essential factors.
3. Each factor should be weighted proportionately with the way it is taught and stressed in the course.
4. The number of factors to be included should be determined by practical considerations and not necessarily by every possible aspect of typewriting behavior which might be evaluated.

Some of the factors most often considered in arriving at a grade in typewriting are discussed below.

1. *Straight-Copy Speed*. A speed-accuracy relationship is usually considered, speed being the chief determining factor with controls on accuracy. Both speed and accuracy may share equally or in some percentage relationship in determining the grade on this factor. Frequently a minimum speed-accuracy standard is required for passing, even though this factor may receive a certain weighting in the total grade. In general, most authorities agree that the straight-copy speed factor should receive a decreasing weight in advanced typewriting.

2. *Techniques*. It is not uncommon for 50 to 100 percent of the grade for the first semester to be based on the technique factor. Stewart[21] says, "In the early stages of learning to typewrite, the quality of the finished product is far less important than the quality of the typewriting movement . . . Grades are given at the first grading period on an evaluation of student techniques." There is fairly general agreement that the weighting of the technique factor should receive decreasing emphasis after the first semester.

3. *Knowledges and Understandings*. There is fairly general agreement on the importance of this factor but lack of agreement on the weight which should be assigned to it in grading. For instance, Russon and Wanous[22] say, "If objective tests are used in typewriting, they should carry little weight as far as grading purposes go." The authors[23] of one text recommend that the objective test grades be used only to resolve even tossups when averaging skill and production grades. It should be remembered that students do not take seriously any factor which does not count a part of the grade.

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[21] Jane Stewart, "Managing Paper Work in Typewriting," *Business Education Forum*, 15 (November, 1960), 17-19.

[22] Russon and Wanous, *op. cit.*, p. 398.

[23] John L. Rowe, Alan C. Lloyd, and Fred E. Winger, *Teacher's Manual, Gregg Typing, 191 Series, Book One, General Typing*, (New York: Gregg Publishing Division, McGraw-Hill Book Company, 1962), p. 10.

4. *Production or Problem-Typing Skill.* Methods of teaching and evaluating this factor are discussed in the section entitled "Production Typewriting." It should not be taught and therefore should not count as a part of the grade in the first semester. If taught in the second semester, the weighting given it should correspond with the teaching emphasis given to it. There is a trend toward giving the production typewriting factor a weighting of 50 percent or more of the grade in the third and fourth semesters.

5. *Work Habits and Attitudes.* Many studies have shown that deficiency in this factor is of equal or greater importance in determining vocational competency than skills and knowledges. Therefore, its inclusion as one of the grading factors should receive serious consideration. Lamb[24] advocates that five factors be used in determing the typewriting grade: (1) a cooperative attitude in promoting the general welfare of the group, (2) a responsible attitude toward work, (3) knowledge essential to intelligent performance of the typist's job, (4) minimum typing rate, (5) proficiency in performing typing jobs. Erickson[25] recommends that, "The teacher should be concerned with attitudes of neatness, pride in a job well done, willingness to work, cooperation, courtesy, consideration for others, acceptance of responsibility, self-control, ability to get along with others, and work habits." He further says that,[26] "Evaluation of such attitudes is primarily of a subjective nature . . . nevertheless, part of the final grade of the student may well include the important area of attitudes."

6. *Improvement.* Some authorities recommend considering improvement as a separate factor; others think that the grade on each factor should take into consideration improvement in that factor. Nevertheless, inclusion of this factor seems justifiable since it is highly motivating to students of all ability levels.

SOME RECOMMENDED FACTORS AND GRADING STANDARDS

1. Russon and Wanous[27] suggest the following factors with relative weightings for a four-semester typewriting program:

	1st Sem	2nd & 3rd Sem	4th Sem
Speed and Accuracy Improvement	20%	20%	10%
Speed and Accuracy Achievement	20%	20%	20%
Techniques at the Machine	10%	10%	10%
Application Exercises	30%	20%	10%
Production Tests	20%	30%	50%

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[24] Lamb., *op. cit.*, pp. 158-159, 270.

[25] Erickson, *op. cit.*, p. 100.

[26] *Ibid.*

[27] Russon and Wanous, *op. cit.*, p. 405.

2. Lessenberry, Crawford, and Erickson[28] suggest the following factors with weighted percentages in determining the grade:

	1st Sem	2nd & 3rd Sem	4th Sem
Techniques	30%	10%	0
Basic Skill Competencies	40%	30-40%	20%
Problem and/or Production Work	20%	40-50%	70%
Work Attitudes and Habits	10%	10%	10%

3. If the teacher wishes to include a larger number of factors, the following plan might be considered:

	1st Sem	2nd Sem	3rd Sem	4th Sem
Techniques	50	20	10	0
Speed and Accuracy Improvement	0	10	10	10
Speed and Accuracy Achievement	20	20	20	20
Attitudes and Work Habits	20	20	10	10
Knowledges	10	10	10	10
Production and/or Problem Solving	0	20	40	50

4. Another grading plan suggested for first-year typewriting is as follows:[29]

First Six Weeks	*Second Six Weeks*	
Speed: None	Speed:	20%
Essential Knowledge:	Essential Knowledge	40%
1. Posture	Production	40%
2. Attitude	Speed Scale:	CWPM
3. Stroking Technique	A — 25	
4. Inserting Paper	B — 21-24	
5. Work Habits	C — 17-20	
	D — 13-16	

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[28] D. D. Lessenberry, T. James Crawford, and Lawrence W. Erickson, *Teacher's Manual for 20th Century Typewriting*, Eighth Edition, (Cincinnati: South-Western Publishing Company, 1962), pp. 23-24.

[29] "Suggested Grading Standards for First-Year Typewriting in Secondary Schools," *Typewriting News*, Vol. XXX, (Spring, 1960), 6.

Third Six Weeks

Speed	30%
Production	45%
Essential Knowledge	25%

Speed Scale: CWPM

A — 32
B — 28-31
C — 24-27
D — 20-23

Fourth Six Weeks

Speed	40%
Production	45%
Essential Knowledge	15%

Speed Scale: CWPM

A — 35
B — 32-34
C — 26-31
D — 21-25

Fifth Six Weeks

Speed	45%
Production	45%
Essential Knowledge	10%

Speed Scale: NWPM

A — 38
B — 30-33
C — 25-29

Sixth Six Weeks

Speed	45%
Production	45%
Essential Knowledge	10%

Speed Scale: NWPM

A — 40
B — 37-39
C — 33-36
D — 29-32

INTERNAL AND EXTERNAL STANDARDS[30]

In general, there are two types of standards and therefore two types of grading plans based on them:

1. *Internal Standards.* A grading plan in which the grade of each student is determined with relation to the average performance of the class is based on an *internal standard.* This plan is recommended by the authors[31] of one leading text. Suggestions are given for converting raw scores into a normal-curve distribution of grades (7% A, 24% B, 38% C, 24% D, 7% F). This plan is particularly convenient when used with a point system for checking problems, tests, etc.

2. *External Standards.* A grading plan based on predetermined standards such as those suggested by authors of textbooks, required by business, advocated by writers in professional journals, etc., is based on external standards. They do not fluctuate with the levels of ability of different classes, the quality of instruction given by different teachers, and the like. The following suggested grading plan for timed writings is an example of an external standard:[32]

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[30] Lamb, *op. cit.,* p. 173.
[31] Rowe, Lloyd, and Winger, *Loc. cit.*
[32] Rowe, Lloyd, and Winger, *Loc. cit.*

Grading Scale

	Grade	Rate	Length	Errors		Grade	Rate	Length	Errors
1st 6 wks	A	36	2	5	7th 6 wks	A	46	5	4
	B	30				B	40		
	C	19				C	27		
	D	14				D	22		
2nd 6 wks	A	41	2	5	8th 6 wks	A	51	5	4
	B	36				B	45		
	C	24				C	31		
	D	19				D	25		
3rd 6 wks	A	41	3	5	9th 6 wks	A	54	5	4
	B	36				B	49		
	C	24				C	34		
	D	19				D	28		
4th 6 wks	A	41	4	5	10th 6 wks	A	54	5	3
	B	36				B	49		
	C	24				C	34		
	D	19				D	28		
5th 6wks	A	41	5	5	11th 6 wks	A	55	5	3
	B	36				B	50		
	C	24				C	36		
	D	19				D	30		
6th 6 wks	A	46	5	5	12th 6 wks	A	56	5	3
	B	40				B	51		
	C	27				C	37		
	D	22				D	30		

Terminal School Standards. Terminal standards for timed writings on straight copy are of vital interest to business teachers. Rowe says:[33]

> Straight-copy standards in a *vocational* typewriting course should be as follows: 50 words a minute on a ten-minute timed writing and 60 words a minute on a five-minute timed writing.
>
> Some employment officials still give ten-minute timed writings. Modern teaching methodology in typewriting rejects the practice of giving numerous ten-minute timed writings when developing skill. Nevertheless, this does not preclude giving some ten-minute writings for employment testing conditioning purposes during the final few weeks of the vocational typewriting course.
>
> Accuracy—for terminal standards, approximately one error for every two minutes as a maximum. For a five-minute timing no more than two or three errors; and for a ten-minute timing, no more than four or five errors.

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[33] John L. Rowe, "Standards in Typewriting," *Business Education Forum,* 20 (May, 1966), 5-7.

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TYPEWRITING TEACHERS

John Ruskin wrote: "Teaching is a painful, continual, and difficult work to be done by kindness, by watching, by warning, by precept, by praise, but—above all—by example."

Good teaching is more than making assignments, grading papers, checking rolls, and performing clerical duties; good teaching is *invigorating lives through learning*. Before learning can take place, however, teachers must have a good philosophy and must have a command of good classroom procedures. In addition, typewriting teachers must be teachers of skills and knowledges, which must be taught and retaught so that students will be able to apply them to practical situations. Along with the development of skills and knowledges, typewriting teachers must develop social attitudes that emphasize service to society.

Typewriting can be taught effectively only if teachers possess the necessary attitudes and personality traits, educational training, and knowledge of classroom methodology. The following qualifications and characteristics are essential:

PERSONAL

1. He is physically and emotionally sound.
2. He has a keen sense of humor and a pleasing personality.
3. He is patient; he adjusts himself to the student with whom he works.
4. He is considerate of the student and other teachers in making assignments.
5. He likes people and is liked by them.
6. He is sensitive to students' needs.
7. He readily admits his mistakes.
8. He has a feeling of adequacy in dealing with students of high and low intelligence quotients.
9. He has an appearance that is suitable for a business teacher.
10. He is civic minded; he is prominent and active in his community and acquaints members of the community with the work of the school.
11. He uses effective speech.

EDUCATIONAL

1. He has a minimum of a bachelor's degree, with a major in business education, including appropriate preparation in general education, general professional education, professional business education, and content in the teaching field.
2. He has a thorough knowledge of typewriting, is able to type at better-than-average speed, and can manipulate the typewriter expertly so that the student will recognize his ability and have confidence in him as an efficient teacher.
3. He has a broad background and knowledge of business requirements in addition to preparation in typewriting. He keeps abreast of the demands and changes in business.
4. He has a philosophy of teaching typewriting that is definite, is consistent with sound principles of methodology, and is flexible enough to allow for variation in teaching procedure.
5. He has a good professional attitude. He endeavors to promote business education as a profession on local, state, and national levels through membership in professional associations and attendance at professional meetings. He keeps informed professionally by reading all available literature in the field of business education. He has an inquiring mind and engages in experimental studies in the methodology of teaching typewriting from time to time.

CLASSROOM PROCEDURES

1. He is a good demonstrator of every aspect of typewriting skill at every stage or level of typewriting instruction.
2. He plans his lessons carefully, presenting interesting activities that eliminate monotonous busy work and keep the student engaged in purposeful pursuits.
3. He individualizes the students' work. For some, individualized instruction means simplification; and for others it means enrichment.
4. He uses the textbook as an aid to teaching and not as a crutch on which to lean.
5. He is a keen observer of correct techniques and plans remedial practicies for incorrect ones. Records of his observations are kept for remedial teaching.
6. He does much floor work, moving from student to student, correcting faulty techniques, demonstrating and answering questions pertaining to the problems at hand.

7. He teaches individuals, not subject matter alone.
8. He remains in the typewriting classroom during the entire period.
9. He regulates physical factors for the best learning situation.
10. He begins class promptly and does not waste time with nontypewriting activities.
11. He uses effective speech.
12. He uses praise and reproof effectively.
13. He keeps students informed of progress.
14. He uses resources to a good advantage.

Crawford emphasizes the importance of the typewriting teacher in the following quotation:[1]

> Whatever can be done to assure top quality instruction in all typewriting classrooms should be done with dispatch, for the prestige of both process and product hinges precariously on the potency of the teacher in the learning process.

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[1] T. James Crawford, "In the Interest of Improving Typewriting Instruction," *Business Education Forum,* 20 (November, 1965), 5, 16.

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PROGNOSIS IN TYPEWRITING

Since 1917 individuals have been attempting to identify specific factors that will predict success in typewriting. In the *Typewriting Research Index,* Rahe lists the investigations in typewriting that were conducted each year from 1904 to 1963, with the exception of 1905, 1908, 1909, 1910, 1911, 1915, and 1920. During this period of time, 95 investigations have pertained to prognosis, which made this topic rank first in relation to other topics pertaining to typewriting. Of the total number, approximately 35 investigations were conducted in the 1930's; however, after the 1930's, the number of investigations declined, with approximately 20 conducted during the 1950's.

From the above information, one can conclude that interest in prognosis has declined. Hantjis says that prognosis in typewriting has been limited in recent years because of today's current philosophy that everyone should take typewriting, or at least everyone should have an opportunity to take this subject. However, he believes that valid prognostic tests still have value for grouping students and aiding teachers to plan better instructional programs that will meet individual needs.[1]

RESEARCH STUDIES

When the subjects for these 95 investigations were analyzed, it was found that the subjects ranged from the very general topics to the very specific topics. For example, a very popular subject was "Prognosis of Typewriting Success"; and a very specific topic was "Effect of Piano Playing on Learning to Typewrite."

The literature of prognosis of success in typewriting does not reveal definite factors that will predict success. The following list will present some of the findings of recent studies that have pertained to prognosis. The last name of the investigator will be given in parentheses after each statement, and the statements will not be footnoted; all of these references will be included in the Bibliography at the end of this section.

1. It is believed that there is a positive correlation between reading level and basic typewriting ability. Experience indicates that achievement in other school subjects is a good indicator. (Selden)
2. Grade-point average and reading scores are somewhat better-than-guess predictors of the likelihood of success in acquiring

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[1] Anthony W. Hantjis, "Significant Implications of Research in Typewriting," *Secretarial Education with a Future,* Yearbook of the National Business Teachers Association and the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1962), pp. 65-91.

typewriting skill, particularly when the two are considered together. However, their predictive value is low. (Robinson)

3. Girls can probably be expected to do somewhat better than boys with the same grade-point averages and reading levels. It is not assumed, however, that sex alone is an influential factor in predicting typewriting success. (Robinson)
4. Typewritng teachers should determine the reading level of beginning typewriting students. (Wood)
5. Investigators believe that the higher the student's rate in reading words per minute the greater the speed performance in typewriting. (Foss)
6. I. Q. Scores are closely related to individual speed performance. (Foss)
7. Students must have clerical ability of at least 30 on the D. A. T. (Differential Aptitude Test) to do an acceptable job in a typewriting class. (Kasper and Brady)
8. Coefficient of correlation shows a relatively close relationship between typewriting speed and accuracy; fast typists tend to be accurate typists. (Eckert)
9. Relatively high positive correlation between speed attained the first two weeks in beginning typewriting and speed attained nine weeks later in the course. (Eckert)
10. Little relationship between intelligence and typewriting speed or accuracy on straight-copy materials. (Eckert)
11. Positive relationship does exist between intelligence and success in typewriting. While intelligence may not be a *necessary* factor in learning to typewrite, the findings indicate that mental ability is closely related to success in learning to typewrite and suggests that intelligence may still be the best predictor of success, especially when a time limit is placed on the learning process. (Tucker)

FACTORS IN DETERMINING APTITUDE

From the variety of subjects used for the 95 investigations and from the random list of findings, it is obvious that several different factors must be considered for predicting success in typewriting. Rowe believes that the following factors contribute to successful vocational typewriting and that they can be used as criteria in predicting success and in determining who has an aptitude for vocational typewriting:[2]

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[2] John L. Rowe, "Prognosis in Typewriting," *Business Education Forum*, 12 (November, 1957), 16-17.

1. Basic typewriting skill—the ability to typewrite accurately at a rapid rate. Schools should set up realistic standards based on occupational surveys, job analyses, and close contact with their business community.
2. *An intelligence quotient of above-average or average* (depending on other considerations listed here)—the ability to take directions and execute them intelligently; the knowledge of proper procedure in usage of good form; the exercise of judgment.
3. *A familiarity with the mechanics of English*—the ability to proofread and to correct errors in spelling, punctuation, grammar and form; a good working vocabulary; a knowledge of correct form for letter writing, manuscript writing, and outlines.
4. *Emotional stability*—the ability to work for long periods—sometimes under stress; the ability to get along in a spirit of cooperation with fellow employees; the ability to adapt to various situations.
5. *Interest*—interest is one of the most important factors because it serves as an incentive to overcome deficiencies in any of the other factors—it is the spur to success; it ensures vocational satisfaction and stimulates occupational achievement.
6. *Health*—the physical ability to meet the job requirements.

Rowe recommends that the foregoing criteria be used with the following procedures to predict success, with a satisfactory reliability, in a vocational typewriting course:[3]

1. Students electing the business curriculum should be given four tests: (a) typewriting test using straight-copy material to determine speed-accuracy scores, (b) typewriting test using material which requires a knowledge of proper procedure, (c) IQ test, and (d) English test.
2. Teachers should review the scholastic records of prospective students to determine: (a) capacity for learning and (b) interest and perseverance as reflected in their attendance record, which may also indicate their health.

Because so many students elect to take typewriting for personal use, there is no need to use these prognosticating devices in beginning typewriting classes. However, these devices should be used to determine the students who have an aptitude for vocational typewriting, and they should also be used as criteria to predict success. Up to this time, prognostic tests for predicting typewriting success have not been entirely reliable. Therefore, it is a challenge to teachers and other specialists in typewriting to find new devices or instruments of measurement that will predict success in typewriting.

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[3] *Ibid.*

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LAYOUT AND EQUIPMENT

INTRODUCTION

Layout and equipment of typewriting rooms should conform to objectives of the typewriting course, size of the school, and enrollment in the course. The effectiveness of instruction is conditioned, to a great extent, by the room layout and physical equipment.

This section will aid administrators and teachers to plan and equip the typewriting rooms. However, this section must not be construed as an attempt to reduce planning to absolute uniformity.

FACTORS TO CONSIDER IN PLANNING TYPEWRITING ROOMS

The planning of functionally efficient typewriting rooms must be based on the following factors:[1]

1. Generally accepted principles of school planning.
2. Effective room planning—light, ventilation, colors, storage facilities, chalkboards, bulletin boards, audio-visual aids, etc.
3. Careful analysis of the needs of the youth of the school community.
4. Special needs of the typewriting room, which are unique to this room.

Location. Care should be taken in locating the typewriting classroom when planning a new building. The typewriting classroom should be located on the first floor, preferably in the northeast section of the building. This classroom should be located in the center of the business-education complex because typewriting is frequently included in the activities of other classes, particularly shorthand and office practice.

Size of Room. Typewriting classrooms in Georgia high schools shall contain 900 square feet, with an allowance of 30 square feet per student station. The rooms used for typewriting and bookkeeping are frequently five to ten feet longer than those used in general classrooms.

Doors. If the room is large, it should have doors at both the front and rear of the room leading into the corridor to facilitate entering and leaving the room.[2] Selden[3] believes that connecting doors between a typewriting classroom and another room are not advisable because noise from the typewriters distract other classes.

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[1] Fred S. Cook, "Planning Tomorrow's Business Classroom," *Balance Sheet,* 38 (November, 1956), 100-102.

[2] Jane E. Clem, *Techniques of Teaching Typewriting,* (Second edition; New York: McGraw-Hill Book Company, Inc., 1955), p. 34.

[3] William H. Selden, Jr., Bulletin 275, *Typewriting for Business Education Departments in Pennsylvania's Public Schools* (Harrisburg: Commonwealth of Pennsylvania, Department of Public Instruction, 1962), p. 57.

Walls and Ceiling. Acoustical material should be used for the walls and ceiling.

Floors.[4] Asphalt tile or its equivalent should be used on the floor of each typewriting room.

Windows. Windows should be above the head of the student of average height when he is seated. To give maximum natural light and to eliminate as much glare as possible, the windows should extend to the ceiling; windows should be at the student's right.

Electrical Outlets. More electrically operated machines are being used in typewriting classrooms. Therefore, it is necessary that sufficient electrical outlets be included in building plans for classrooms.

A minimum of one double electrical outlet at the front of the room and one double outlet at the rear is recommended for Georgia schools. Also, if no outside aisles are provided, there should be a double outlet along each wall (12" from the floor) for each pair of desks. If outside aisles are provided, a double electrical outlet in the floor is recommended for each pair of desks.

Master Switch.[5] To facilitate turning machines on and off, there should be a master switch in the typewriting room. The master switch should be equipped with a small light to indicate whether or not the machines are on or off.

Lighting. Desks should be placed so that the natural light comes over the right shoulder of the students. The lighting system should provide uniform illumination of adequate intensity without glare. Incandescent or fluorescent lighting to provide 50 foot candles of light is recommended for the typewriting classroom.

BUILT-IN EQUIPMENT

Storage Space. Built-in storage cabinets should be provided for keeping teaching materials and supplies. The cabinets should be 6'x12' with shelves; depth 12" x 24"; height 12" x 24".

Bulletin Boards or Tack Boards. The bulletin board or tack board should be located in an easily accessible place for students. The mandatory requirements in Georgia are 12 to 14 lineal feet of tack board in each room. Metal hanger strips should be installed above the tack board space for use in hanging displays.

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[4] *Ibid.*

[5] John L. Rowe, "What About Equipment in Typewriting?" *Business Education World,* 44 (June, 1964), 23-24, 28.

Chalkboards. There shall be a section of 12-foot chalkboard along the front wall of each room and a section of 12-foot wall tackboard along the side wall of each room.

Lavatory. It is necessary to have convenient washing facilities in the typewriting classroom. Constantly, students work with typewriter ribbons, carbon paper, and duplicating materials. With washing facilities, frequent washing of hands can take place with a minimum of disturbance and loss of tme.

EQUIPMENT—FURNITURE

Factors to Be Considered in Selecting Equipment[6]

1. Will the equipment selected actually contribute to effective learning?
2. Can the equipment be adjusted to take care of individual differences?
3. Is the equipment practical—serviceable without being too elaborate?
4. Is it durable—sturdy, substantial construction?
5. Can it be used easily and comfortably by all students?

Desks.[7] The classroom should be equipped with desks or tables that are instantly adjustable in height. The height of the machine at which students type has a pronounced effect on speed, on productivity, and especially on accuracy. If funds are not sufficient to buy adjustable desks or tables, tables of different heights should be bought.

The following is recommended: 20 percent of the tables should be 27 inches high; 60 percent, 29 inches; and 20 percent, 30 to 31 inches.

The typing teacher should have a double-pedestal, flat-top office desk with ample drawer space. A chair, same design as desk and suitable to the teacher, should accompany the desk.

Electric machines should be placed on lower tables or desks because of the flatter keyboard.

Chairs.[8] Posture chairs or chairs designed for typewriting rooms should be used. The new chairs, which are designed for typewriting classroom use, have seats that are instantly adjustable in heights; however, the backs are stationary. The height of the chairs will vary from 16 (few) to 18 (most) to 20 (two or three) inches high. There should be metal gliders, not casters on the chairs; casters permit the chair to roll back as the student types.

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[6] T. James Crawford, "Your Typing Questions," *Balance Sheet*, 28-29 (February, 1947), 275.

[7] Alan C. Lloyd, "Making the Most of Your Typing Classroom," *Business Education World*, 35 (February, 1955), 16-18.

[8] *Ibid.*

Teacher's Desk. Top 30" x 60"; height 30", either single or double pedestal.

Demonstration Stand.[9] Teacher demonstration is one of the most effective ways of teaching skills; every teacher of typewriting should be able to demonstrate the correct techniques of typewriting. With a typewriter and a demonstration stand, teachers can *show how*—not *tell how.*

Since teachers vary in height, the demonstration stand should be adjustable; and it should be on casters, so that it can be moved to the most advantageous sections of the room. There should be a drop leaf on the right of both sides for the textbook or copy.

There are excellent, adjustable demonstration stands in the market. Often it is too difficult to purchase a stand; however, a good carpenter can construct one when given proper directions.

Chandler and Feller[10] recommend a demonstration stand, 20" x 20", adjustable levels 41", 43", and 45" from the floor and a 12-inch shelf at the side to hold copy.

Filing Cabinet. A metal four-drawer or five-drawer letter-size filing cabinet should be provided, with A-Z pressboard guides for each drawer.

ARRANGEMENT OF TYPEWRITING ROOM

Arrangement of the typewriting classroom has a pronounced effect on the accomplishments of any class. It controls the learning conditions, working habits, and using time.

Lloyd recommends the following:[11]

1. The desks or tables seem best in paired rows, with aisles of 30 inches.
2. The teacher's desk traditionally has been in the front of the room, but many experienced typing teachers will affirm that moving the desk to the rear reduces misbehavior.
3. Windows should be at the students' right (the reverse of what is normal in other classrooms) so that the natural light will fall directly on the textbooks, without shadows. Second choice arrangement would be to have the windows behind the students.
4. Chalkboard should cross the front of the room.

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[9] *Ibid.*

[10] Dorothea Chandler and D. W. Feller, "Do You Have an Ideal Typewriting Classroom?" *UBEA Forum,* 7 (March, 1953), 30-31.

[11] Lloyd, *loc. cit.*

KINDS OF TYPEWRITERS

Typewriters—Make. If there is only one typewriting classroom, all typewriters should be of the same make, model, and type. Lloyd[12] believes that the fewer makes of typewriters in one room, the easier it is to teach. In addition, the teacher is able to demonstrate and explain the correct techniques more effectively.

During the first semester of typewriting, a student should type on only one make of machine. However, seniors should obtain instruction on all makes of typewriters in the office practice room.

Brendel cites the following advantages of a uniform make of manual and a uniform make of electric throughout a department, each with lettered keyboard and color-coded by years:[13]

1. Machine directions will be uniform for all students by all teachers.
2. Students can move from one machine to another of same make when necessary with less adjustment.
3. Better service and cheaper maintenance.
4. Students well-taught . . . on one make of machine can adjust to another make in an office when necessary.

Typewriters—Size of Type. Pica typewriters have 10 spaces to a horizontal inch, and elite typewriters have 12 spaces to a horizontal inch. Lloyd[14] believes that many schools have wisely converted to elite machines because all government forms are designed for elite typing, and almost everyone in business uses elite machines.

Typewriters—Keyboard, Blank and Lettered. In recent years, typewriting authorities have been recommending letters on the keyboard. They do not believe that blank keyboards keep students from looking at the keyboards. Rowe and Peterson[15] made the following statement supporting lettered keyboards: "The typewriting teacher profession has almost universally accepted open, visible keyboards, together with the principle of teaching by sight, as a preferred procedure."

Typewriters—Numbered. Typewriters should be numbered to keep students from exchanging machines, to specify a particular typing station, and to guide the serviceman in repair work.

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[12] Alan C. Lloyd, "Five Checkpoints for Your Typing Classroom Machines," *Business Teacher,* 40 (January-February, 1963), 14.

[13] LeRoy A. Brendel, "Equipment Considerations in Typewriting," *Methods of Teaching Typewriting,* Yearbook of the Eastern Business Teachers Association, 38 Somerville, New Jersey: Somerset Press, Inc., 1965), pp. 201-215.

[14] Lloyd, *op. cit.,* p. 14.

[15] John L. Rowe and John C. Peterson, "Typewriting," *Research by the Classroom Business Teacher,* Yearbook of *The American Business Education Association,* 18 (Somerville, New Jersey: Somerset Press, Inc., 1961), pp. 139-161.

Typewriters—Cleaning. Cleaning the typewriters is an aid to keeping the machine in good working condition. To be sure this necessary housekeeping duty is not overlooked, an outline of proper cleaning procedures should be distributed to all students. Brady[16] gave an outline to use in cleaning typewriters and also a list of supplies in the October, 1952, issue of the *Journal of Business Education,* pages 24-26.

Typewriters—Repair. Typewriters that need repairing should be identified in a systematic and an efficient manner. Clem suggests the following as a workable plan:[17]

> 1. Have a diagram of the room on which a small card is hung when a machine needs repair. From the cards the serviceman can tell quickly which machines need repair and what the difficulty is.
> 2. Keep a card index. The card is made out when the typewriter is bought. On this card is kept an exact account of the expenditures for repairs, the type of repairs, and the parts replaced. This information will help to determine which machine should be replaced.
>
> When the student reports the need of repair, a description of the mechanical defect should be included.

In *Philosophy and Psychology of Teaching Typewriting,* Russon and Wanous describe four methods for handling repairs; these methods are as follows:[18]

Contract service
Service calls for several machines
Individual service calls
Repairman hired by school

Typewriters—Replacement Policy. Russon and Wanous[19] believe that typewriters should be traded in at regular intervals; they state that some typewriter companies suggest that typewriters be turned in every three years, but they also state that the majority of schools prefer a five- or six-year replacement policy.

Payne[20] recommends that if typewriters receive use and abuse they should be traded in before they are over five years old.

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[16] Mary Margaret Brady, "Teach Cleaning the Typewriter," *Journal of Business Education,* 28 (October, 1952), 24-26.

[17] Jane E. Clem, *Techniques of Teaching Typewriting,* Second Edition, (New York: McGraw-Hill Book Company, Inc., 1955), p. 34.

[18] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting,* (Cincinnati: South-Western Publishing Company, 1960), pp. 76-80.

[19] *Ibid.,* p. 80.

[20] Vernon V. Payne. "Here's an Effective Method for Getting New Typewriters," *Business Education World,* 43 (March, 1963), 14-16.

Lloyd[21] cautions teachers about old machines in the following quotation:

> A worn machine invariably warps the learner's habits. There is no such thing as a 'good ole machine' for learners. Old machines should be traded in every three years—five at the outside. One can learn on an old machine, but he cannot learn well nor develop the best habits.

OTHER EQUIPMENT

Paper cutter, with work table
Interval timer or stop watch
Adjustable paper punch
Typewriter brushes
Reference books
Stapler
Staple remover
Letter trays
Dictionaries
Pencil sharpener
Copyholders

SUPPLIES

Letterheads—8½" x 11"
Bond paper—8½" x 11"
Onion skin, second sheets
Yellow second sheets
Carbon paper
Manila folders
Stencils
Correction fluid
Ribbons
No. 6¾ envelopes
No. 10 envelopes
3" x 5" index cards
Window envelopes
Gummed labels
Erasers with brush
Eraser shields
Paper clips
Type cleaner
Cleaning cloths

TYPEWRITING PAPER

Yellow second sheets may be used before correction of errors is taught and required. After this point, at least 16-pound bond should be used.

Letterheads may be provided by (1) purchasing letterhead pads, (2) mimeographing letterheads on mimeograph paper or 16-pound bond, (3) getting the Printing Department of the school to print the school Business Education Department letterhead on 16-pound bond, and (4) obtaining discarded business letterheads from the businessmen of the community.

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[21] Alan C. Lloyd, "Maybe It Is the Typewriter," *Business Teacher*, 40 (March-April, 1963), 13.

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AIDS FOR TEACHING TYPEWRITING

Teaching aids cannot substitute for teachers. However, the use of various aids benefits both teachers and students; but good results depend upon wise selection and proper presentation. Therefore, teachers should be able to evaluate teaching aids by using a check list that is similar to the one that follows.

CHECK LIST FOR EVALUATING TEACHING DEVICES[1]

The items of the scale are arranged in order of importance according to the findings of the study.

1. To what extent does the activity produce desirable changes in the student?
2. To what extent does the activity produce student interest?
3. To what extent do the students participate in the activity?
4. To what extent does the activity develop personality, traits, or attitudes?
5. To what extent do the students know of their success in the activity?
6. To what extent does the activity provide for individual differences?
7. To what extent does the activity provide for cooperative endeavor?

TEXTBOOK

The typewriting textbook is the most important aid for typewriting teachers. Lessenberry points out the importance of the textbook in the following statement:[2]

> Well-organized textbook materials are an aid to teachers through freeing them from having to make lesson plans, organize the sequence of learning materials, and to determine the relative emphasis on each lesson part; however, it will be the teacher, not the textbook, who makes learning to typewrite an exciting and satisfying experience.

Satlow[3] believes that "the *good* teacher deserves a *good* textbook." Because the textbook is so important to both teachers and students, typewriting textbooks should be carefully selected. Therefore, the following factors should be considered in evaluating typewriting textbooks:[4]

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[1] Oren W. Tarbox, "The Evaluation of Booking Teaching Devices." (Master's Thesis, The University of Southern California, Los Angeles, 1942).

[2] D. D. Lessenberry, "A Comparison of Patterns of Figure Symbol Introduction," *Practices and Preferences in Teaching Typewriting*, Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 28-30.

[3] I. David Satlow, "Teachers Share Textbook Selection," *Journal of Business Education*, 41 (February, 1966), 188-190.

1. Appearance
2. Title
3. Author
4. Publisher
5. Copyright
6. Preface
7. Content
8. Illustrations, diagrams, and pictures
9. Index
10. Instructional aids

AWARDS

Recognition for outstanding achievement is an excellent motivating device. When students have tangible incentives for which to strive, work becomes a game and proficiency and skills increase.

Information about typewriting tests and awards may be obtained from the following sources:

Gregg Tests and Awards Services
330 West 42nd Street
New York, New York 10036

South-Western Publishing Company
5101 Madison Road
Cincinnati, Ohio 45227
National Business Education Association
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

REFERENCE BOOKS

Reference books are a major need for the typewriting classroom. The teacher should provide many opportunities for students to use them. It is impossible to list all the reference books that could be used by typewriting students. However, the following reference books should be found in *each* typewriting classroom:

1. Dictionary
2. Handbook for secretaries
3. Style manuals

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[4] *Ibid.*

4. **Directories**
    a. **Telephone**
    b. **City**
5. **Atlas**
6. **Geographical dictionary**
7. **Official postal guide**
8. **Typewriting textbooks (other than textbook being used)**

LEARNING AIDS OF TYPEWRITER COMPANIES

Typewriter companies provide helpful supplementary teaching materials. Because the material is under constant revision, some of the companies suggested that only the address be given in this *Guide*. Therefore, if a teacher desires to know the material that is currently available, it is recommended that he write the company.

International Business Machines Corporation
Educational Services
590 Madison Avenue
New York, New York 10022

Olivetti Underwood Corporation
One Park Avenue
New York, New York 10016

Remington Office Machines
Division of Sperry Rand
333 Wilson Avenue
South Norwalk, Connecticut 06856

Royal McBee Corporation
Westchester Avenue
Port Chester, New York 10573

AUDITORY DEVICES

***Tapes.* The magnetic tapes make it possible to reproduce pre-recorded material and also original teacher-produced material. The tape recorder is relatively inexpensive because the same tape can be used repeatedly; each new recording automatically erases the previous one.**

Lessenberry encourages teachers to use some recorder paced instruction in the classroom. He cites the following advantages:[5]

1. Supplements the work of the teacher; it frees the teacher to do only the things that a teacher can do—observe, correct, encourage, and coach individual students while the lesson goes on for the group as a whole.
2. Provides group-paced typing and calls the guides for individual guided writings.
3. Gives direct dictation.
4. Furnishes technique cues.
5. Is inexorable—once it is started, it keeps on. No student can stall by asking questions or by making belated machine adjustments. The presentation is uninterruptable. The students, therefore, get maximum directed practice. This is one great contribution recordings make to effective teaching.

Tapes can also be used by absentees who need to make up their work, and they can be used by students who are having difficulty with typewriting and who need additional practice. Although the tape recorder makes many valuable contributions to the learning process, the recorded lesson cannot replace the teacher.[6]

Records. Typewriting authorities do not agree on the use of records in the classroom. Therefore, the pros and cons on the use of rhythm records will be given.

First, some quotations from Robinson's article, "'The Problem of Typewriting Rhythm" will be stated. These quotations will include the advantages and disadvantages of records in the typewriting classroom.[7]

1. *Rate of Learning.* Since each student in the classroom in which a rhythm record is playing is forced to type at the same speed, metronomic rhythm assumes wrongly that every student in the typing class needs the same kind of practice at the same time.
2 *Stroking.* Metronomic rhythm gives each stroke of the keyboard the same amount of time for completion. Therefore, it is wrongly assumed that every stroking combination on the typewriter is of the same difficulty and that all students stroke all the keys with equal facility.
3. *Accuracy Development.* Metronomic rhythm assumes wrongly that every stroking combination on the keyboard can be typed at the same pace with the same degree of accuracy.

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[5] D. D. Lessenberry, "Teaching the Letter Keyboard," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 21-24.

[6] *Ibid.*

[7] Jerry W. Robinson, "The Problem of Typewriting Rhythm," *Practices and Preferences in Teaching Typewriting,* Monograph 117, (Cincinnati: South-Western Publishing Company, 1967), pp. 48-50.

ADVANTAGES

1. In the beginning stages of learning when, because of the newness of the skill being learned, all students are typing within the same general speed range, metronomic rhythm can be used to develop basic continuity patterns.
2. When a student using the variable rhythm technique develops a "speed set" and is unable to bring himself under control, the use of metronomic rhythm may help him to overcome the tendency toward erratic stroking.

John L. Rowe makes the following statement about using music in typewriting classes:[8]

> No matter how skillful a typist may be, he does some of his typing on the automatic level, some on the syllable level, and some on the letter level. Because metronomic typing rhythm exists only theoretically, the use of music to acquire it would indeed be pointless. Nevertheless, I strongly believe in the use of music in typewriting classes. Music should be used in the beginning stages of typewriting instruction as a desirable medium to convey correct stroking, not to develop metronomic patternism.

Hosler believes that "since the typing to music would normally be done at a metronomic rhythm and since it forces all students to type at the same speed, the use of music in any one class period should be limited—perhaps a maximum of five minutes."[9]

From these quotations, it is obvious that authorities do not agree about using music in typewriting classes. Some authorities think that the use of rhythm records is detrimental to skill development, but other authorities believe that the use of rhythm records improves stroking in beginning typewriting.

Tapes and records for typewriting instruction are available from the Gregg Publishing Company and from South-Western Publishing Company. Electronic Futures, Inc., produces and sells the Audio Notebook and the Audio Secretary that are operated by short-wave radio within a classroom. Instructional tapes for *20th Century Typewriting,* Eighth Edition, and *College Typewriting,* Sixth Edition, have now been converted to 22-track tapes to fit this equipment. For further information, contact Electronic Futures, Inc., 57 Dodge Avenue, New Haven, Connecticut, 06473.

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[8] John L. Rowe, "The Development of Correct Touch," *Business Education World,* 44 (October, 1963), 29-32, 38.

[9] Russell J. Hosler, "Methods of Teaching the Alphabetic Keyboard," *Methods of Teaching Typewriting,* Yearbook of the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1965), pp. 18-31.

VISUAL DEVICES

Chalkboard. Rowe[10] says that the front wall, facing the students should be given over entirely to chalkboards, because the modern typewriting teacher will use the chalkboard as much as any other teacher in school. Lloyd[11] believes that the expert typing teacher uses the blackboard for original drills, diagrams of production work, class tallies, technique sketches, and seating check charts.

Russon and Wanous list the following *do's* and *don'ts* of chalkboard use:[12]

1. Do write large enough and heavily enough so that everyone in the room can see clearly.
2. Do use colored chalk for important illustrations.
3. Do write high enough so that everyone in the class will look up to see the example.
4. Do explain the illustration with enough vocal projection to reach everyone in the room.
5. Don't stand in front of your illustration.

Bulletin Board. The supply of materials for the typewriting bulletin board is inexhaustible. Teachers, with the help of students, should use this medium to advantage. Logan lists the following rules that might prove helpful for using bulletin boards effectively:[13]

1. Locate bulletin boards in a place where they will receive both adequate lighting and attention.
2. Change the information at least every two weeks.
3. Keep a bulletin board calendar to ensure the timeliness of bulletin board displays.
4. Create good bulletin board headlines by involving the reader, by asking a question, by making a startling statement, by making use of word-play.
5. Use pictures to illustrate the headline and cut down on the use of words.
6. Use an effective color scheme.
7. Get ideas from bulletin and billboards wherever you go. Secure the help of art teachers.

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[10] John L. Rowe, "How to Meet Changing Needs in Typewriting," *Business Education World,* 44 (June, 1964), 24.

[11] Alan C. Lloyd, "Ten Ways to Improve Typing Via Seating Arrangement," *Business Teacher,* 40 (September-October, 1962), 31.

[12] Allien R. Russon and S. J. Wanous, *Philosophy and Psychology of Teaching Typewriting,* (Cincinnati, Ohio: South-Western Publishing Company, 1960), p. 289.

[13] William B. Logan, "Nonprojection Techniques," *Enriched Learning in Business Education,* Yearbook of the American Business Education Association, (Somerville, New Jersey: Somerset Press, 1953), p. 224.

The following types of materials are suggested for bulletin boards in typewriting classrooms:

1. Clippings from periodicals and newspapers.
2. Actual typewritten material obtained from businesses—letters, statements, statistical tables, and other business forms.
3. Examples of all types of problem work, speed tests, etc.
4. Humorous cartoons from professional publications illustrating wrong practices.
5. Charts and posters obtained from publishing companies and typewriter companies illustrating proper practices and procedures.

Felt or Flannel Boards. Felt or flannel boards can be used effectively in typewriting classes. These boards can be made with a piece of masonite that is covered with felt or flannel. They are very flexible because materials can be placed on the board and rearranged or removed.[14]

Charts and Posters. Charts and posters are among the most common visual aids found in typewriting classes. Because the number of charts and posters is so extensive, some of the most frequently used ones will be listed.

1. *Keyboard Chart.* Used in beginning typewriting classes to locate home keys, to introduce new reaches, and to review reaches already taught. These charts may also be used in advanced classes for key-reach reviews, number drills, word-family drills, and symbol-key drills.
2. *Letter-Style Posters.* Used to illustrate letter styles, manuscript typing, card styles, and envelopes.
3. *Manuscript Posters.* Used to introduce and review arrangements of themes, reports, and manuscripts; teach placement and style of headings and footnotes in manuscripts and reports; point out special typing problems—displayed quotations, by lines, subheadings, balancing lines, page-two headings; introduce the preparation of note cards, bibliography cards, index cards, and postal cards.
4. *Charts.* Used to inform students of their progress and to make students constantly aware of accomplishments and weaknesses. Weekly requirement charts, typewriting score charts, and typewriting personal attainment charts are good aids in helping students attain desired goals. Different types of charts may be secured from publishers of typewriting textbooks.

Overhead Projector. One of the most useful of all teaching aids is the overhead projector. This projector produces an enlarged image of material from transparent and translucent surfaces. One of the advantages of this machine is that it projects images on the wall or screen without having to darken the room. In the following quotation, Hanson points out the usefulness of the overhead projector:[15]

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[14] Russon and Wanous, *loc. cit.*

> The overhead projector is useful in teaching proper placement of application problems. Although the correct solution will likely be pictured in the textbook, the overhead projector enables the teacher to better point out various parts of the problem.

The 3M Company has available Business Packet No. 3, which is entitled, "Beginning Typing"—an introduction to the machine and its uses. Another packet is Business Packet No. 4, "Typing Exercises." This packet contains elementary exercises and progresses to the more complex. These two packets can be purchased from *Visual Products, 3M Company Accessories Catalog,* 2501 Hudson Road, St. Paul, Minnesota 55119.

Also, a series of transparencies on typing and office skills is now available. The following list gives the six parts of this set:

1. What Makes a Typewriter Function?
2. How to Make the Typewriter Work Better for You.
3. Writing a Letter.
4. Business Forms.
5. Typing the Manuscript.
6. Making Routine Duties Interesting.

A complete listing of this set and individual prices can be obtained from the Wespen Audio Visual Company, Box 188, Hawthorn, Pennsylvania 16230.

Opaque Projector. Another teaching device that may be used in typewriting classes is the opaque projector. This machine is used to project materials from books, magazines, drawings, etc. It can also be used to project papers containing errors common to the majority of the students in a class. Thus, the teacher can project a typical paper on the screen, point out the errors, discuss the problem with the class as a whole, and eliminate the marking of identical errors on twenty or thirty papers.[16]

Tachistoscope. The tachistoscope is a device that throws images on a screen for extremely short time intervals of from one second to a hundredth of a second. This instrument is used to develop faster responses at the typewriter. Nanassy says that a well-organized tachistoscope typing program has the following advantages:[17]

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[15] Robert N. Hanson, "Application Typewriting: The Foundation for Production Performance," *Business Education Forum,* 21 (April, 1967), 20-21.

[16] Russon and Wanous, *op. cit.,* p. 286.

1. Increases skill in perception and recognition.
2. Improves accuracy and concentration.
3. Increases motivation by a more active participation by the student.
4. Improves ability to concentrate.
5. Improves technique because students sit erect to see the target and attention is directed away from the fingers.

Harves Rahe[18] says that tachistoscopic presentation of copy seems to be helpful to the learner in developing accuracy or speed. However, because this instrument is expensive, its use has been limited.

Films and Filmstrips. Films and filmstrips are valuable instructional aids for teaching intangibles. They have great merit for creating attitudes and building general understanding of the subject. Many excellent films are available to typewriting classes. Typewriting teachers in Georgia high schools should check the *Catalog of Classroom Teaching Films for Georgia Schools,* which lists the films that are available for business education teachers.

Trunt lists the following plan for using films effectively in the classroom:[19]

A. Objective
    1. Have a purpose for showing film.
    2. Sufficient enthusiasm should be aroused for seeing the film.
    3. Film should be presented at the right time.
B. Preparation
    1. Film must have some relation to what is being studied.
    2. Film must be of such length that it can be used in a class period.
    3. The film should be authentic.
    4. Film should be of age and grade level of pupils.
    5. Film should be previewed before showing.
C. Presentation
    1. Tell class why film is being shown.
    2. Point out important things to look for.
    3. Give key questions on important points.
    4. Overlook unimportant sections in follow-up show.

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[17] Louis C. Nanassy, "Visual Aids in Teaching Typewriting," *Methods of Teaching Typewriting,* Yearbook of the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1965), p. 253.

[18] Harves Rahe, "Implications of Research in Typewriting," *National Business Education Quarterly,* 29 (March, 1961), 8-12.

[19] Francis J. Trunt, "Classroom Projection Techniques," *Enriched Learning in Business Education,* Yearbook of the American Business Education Association, (Somerville, New Jersey: Somerset Press, 1953), pp. 196-197.

D. Activity Following Showing
   1. Free discussion.
   2. Good discussion questions will help crystallize important points.
   3. Errors or misunderstandings should be corrected.
   4. New activity developed.
   5. Further study of film may be necessary.

E. Evaluation of the Lesson and Methods of Use
   1. Appraise learning experience in regard to material presented.
   2. Were the pupils interested?
   3. Were the outcomes satisfactory?
   4. Has the use of the materials given new and important information, insights, and understandings?
   5. Have attitudes been affected?
   6. Has behavior been changed?

Television. A teaching medium that is now being used is instructional television. DuBridge, head of the California Institute of Technology, believes that educational television can be the most powerful aid to learning since the invention of printing.[20]

Experiments have shown that typewriting can be taught via television. Pasewark conducted an experimental study at Michigan State University; this experiment involved 44 beginning typists. The results indicated that the students who received instruction via television typed significantly faster on a timed writing than did the students who received classroom instruction. However, the students who received the classroom instruction were more accurate on a production test.

Crawford,[21] with the assistance of Seymour of Duquesne, conducted a study to determine the effect of television on (1) typewriting students, (2) typewriting teachers, and (3) student typewriting performance. This study revealed that all individuals can learn to typewrite via television, but it also revealed that there are more limitations in televised instruction. The results of this study seem to indicate that televised instruction is not a substitute for superior classroom teaching by an individual.

Nanassy makes the following statement about typewriting instruction via television:[22]

> Effective teaching of typing on TV requires that the teacher be thoroughly prepared, with the passing of each presentation planned

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[20] L. T. Rader, "The Little Red All Electronic School House," *FBE Bulletin*, 13 (January, 1967), 13.

[21] T. James Crawford, "Teaching Typewriting by Television," *Balance Sheet*, 41 (February, 1960), 244-246.

[22] Nanassy, *op. cit.*, p. 249.

> almost to the second. The medium lends itself admirably to teacher demonstrations and the use of a variety of other teaching aids. Among the principal disadvantages of TV teaching are its high costs and the lack of personal attention to students' needs. The latter weakness can be overcome by having a regular teacher in the classroom in addition to the TV instructor in the studio.

Selden[23] believes that in most cases typewriting for personal use can be taught by televised instruction. However, he does not think that this method of presentation is satisfactory for vocational instruction in typewriting.

MECHANICAL DEVICES

Strong-Pacer. One of the latest electronic devices to improve typewriting skill is the Strong-Pacer. Nanassy describes this device in the following paragraph:[24]

> Earl P. Strong of the Pennsylvania State University has invented a pacer that is intended to benefit typists, supervisors, teachers, and students. This device automatically times and paces a typist taking a drill or series of drills to improve performance in both speed and accuracy. It has a wide range of speeds—30 to 150 words a minute; individual units permit individual progress; no inaccurate metronomic pacing—does not distort typing pattern; it is reliable.

Skill Builder. Another device intended to speed up the responses of typists is the Skill Builder and correlated visual pacing programs distributed by Learning 400, Inc. (formerly the Business Education Division of the Educational Developmental Laboratories—EDL).

The Skill Builder is a 35 mm. filmstrip projector that projects typewriting copy at predetermined, continuous, rhythmic pace that can be set from 8 to 108 words a minute. Films and manuals are currently available for the Typing Keyboard Introduction Course and Typing-Skill Development Course.

Kline, on the basis of data in her study, made the following statement about the Skill-Builder Controlled Reader:[25]

> The Skill-Builder Controlled Reader can be used effectively in conjunction with regular textbook materials and teacher instruc-

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[23] William H. Selden, Jr., "Typewriting Trends," *Typewriting for Business Education Departments in Pennsylvania's Public Schools,* (Harrisburg, Pennsylvania: Commonwealth of Pennsylvania, Department of Public Instruction, 1962), pp. 51-52.

[24] Nanassy, *loc. cit.*

[25] Randall Miller Kline, "A Study to Determine the Effectiveness of the Use of the Skill-Builder Controlled Reader as an Instructional Device in Developing Speed and Accuracy in Beginning Typewriting at the Secondary School Level," *American Business Education,* 18 (May, 1962) 207-211, 234.

> tion to develop and sustain basic skills after they have been taught by the teacher. The instrument is supplementary to the teacher's instruction. In this study, the experiment was not started until after the letter keyboard had been taught by the teacher.

Diatype. The diatype is a mechanical device that pulls a paper tape across the printing point of an electric typewriter, serves as an instrument for recording stroking patterns of typists and the amount of time used to return the carriage, capitalize, indent certain lines, space between words, and "recover" from making an error.

Teaching aids should be used by typewriting teachers. However, the effectiveness and adequacy of the various teaching aids depend upon how they are used. Cook and Wiper emphasize this fact in the following quotation:[26]

> The educational value of multi-sensory materials and devices has been concretely demonstrated through numerous research programs. No one device has proven superior to all other media. Further, few adherents for those materials have suggested they will completely replace the classroom teacher. In fact, those who have used those devices in an educational setting have emphasized they are *only tools.* These tools can aid in effective instruction, but those tools must be used according to a plan to ensure optimum learning.

Therefore, the use of teaching media can be justified only if they make the lesson more vital, more effective, and more stimulating.

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[26] Cook, Fred S. and Robert E. Wiper, "New Media for Teaching Typewriting," *New Media in Teaching the Business Subjects,* Yearbook of the National Business Education Association, (Washington, D. C.: National Business Education Association, 1965), pp. 87-97.

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PERSONAL-USE TYPEWRITING

DEFINITION

One of the first requirements for understanding a word, a term, or a subject is to be thoroughly familiar with its meaning. Typewriting for personal use seems to have many connotations. It means *many* things to many people. Lloyd[1] in his examination of professional writings, courses of study, and textbooks found that the term "personal use" is applied to nine different typewriting courses, which are as follows:

1. *Six-Weeks' Course*. Students learn to manipulate the machine and touch control of the keys.
   a. Junior high school "exploratory" courses.
   b. Night school courses for adults.
2. *One-Semester Course*. Students master the machine, develop a 30-wam skill, and learn the basic arrangement pattern.
   a. Short junior high school course. The arrangement patterns are for school assignments and personal correspondence.
   b. Senior high school first-year course. The "hitchhikers" ride along with vocational students for a semester.
3. *Academic Course*.
   a. College-bound high school students.
   b. College students, with focus on formal college papers.
   c. "Teen-age" typewriting course during the summer.
4. *One-Year Course*. Students master the machine, develop a 40-wam skill, and practice both basic and derivative applications.
   a. Full-year junor high school courses. Stress is placed on reinforcing students' language skills.
   b. Long high school course. A personalized or academicized paraphrase of first-year typewriting.

Therefore, these results of Lloyd's examination reveal that the term "personal use" is used for typewriting that is offered at different grade levels, to different types of students, and for different purposes. To further clarify the meaning of this term, Rowe's[2] interpretation of personal typewriting is stated in the following paragraph:

> Personal-use students and vocational students should be in the same class for first-semester typewriting. The fundamental difference in the two courses is that students taking it for personal use might terminate the course at the end of the first semester provided they

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[1] Alan C. Lloyd, "The Changing Patterns of Typewriting Courses," *Business Education Forum*, 16 (November, 1961), 16-18.

[2] John L. Rowe, "Arguments for and Against Personal-Use Typewriting Classes," Mimeographed Materials.

have attained a skill of at least 30 words a minute. Those students desiring vocational training would take at least an additional semester or two of typewriting to build up a marketable vocational skill.

OBJECTIVES

Even though "personal-use" typewriting has many connotations, there seems to be general agreement about its major objectives. The first and most important objective of "personal-use" typewriting is the development of a basic skill; the second objective is the application of this skill. However, because these objectives are generally accepted does not mean that they always received the same emphasis.

At an annual problem clinic, the following specific objectives were given:[3]

1. To develop keyboard mastery
2. To develop correct techniques of handling the machine and stroking the keys
3. To develop understanding of the care and maintenance of the typewriter
4. To develop both copying and composing skills at rates sufficiently high to permit students to use the typewriter automatically and to provide the recording of a free flow of ideas
5. To develop basic understanding of centering, tabulating, and spacing copy
6. To develop proficiency in proofreading and error correction
7. To develop proficiency in arranging copy for reports, letters, outlines, and other personal papers
8. To assist students in acquiring writing proficiency on the typewriter through emphasis on idea organization and writing steps
9. To correlate spelling, punctuation, and other basic English essentials with typewriting

In any beginning typewriting class, development of a basic skill should receive the most emphasis. Regardless of a student's objective, he must develop an adequate skill before he can apply this skill. Nevertheless, some typewriting teachers begin application of skill as soon as the keyboard presentation is completed. Because of this emphasis on application, students will not acquire the necessary basic typewriting skill. This deficiency will affect those students who take typewriting for personal use, and it will also later affect those students who take typewriting for vocational reasons. Before students can be successful typists, they must have self-confidence; and the development of a basic typewriting skill gives them self-confidence.

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[3] R. M. Kessel, Chairman, "Tenth Annual Problem Clinic," *American Business Education,* 17 (March, 1961), 134-35.

GRADE LEVEL

From Lloyd's survey, it is obvious that typewriting for personal use is available for persons of all ages and at all grade levels. Therefore, no conclusive evidence can be given to indicate the preferred grade level for offering personal-use typewriting. However, the results of a study that was made of 120 tenth-grade students from six typewriting classes in three high schools in St. Paul, Minnesota, concluded that a student who plans to take typewriting for a full year in senior high school should not take typewriting for part of a year in Grade Nine. It was felt that this time could be used more advantageously by taking some other subject.[4] This study also included opinions of typewriting teachers and counselors.

LENGTH OF COURSE

Because typewriting is available for persons of all ages and at all grade levels, the length of the course also varies. However, there is one fundamental principle that should determine the length of any typewriting course. This guiding principle is that the learning period should ensure sufficient time to develop a high degree of basic skill.

Typewriting authorities recognize the fact that a high degree of basic skill and extensive application of this skill *cannot* be mastered in a one-semester typewriting course. For this reason, they recommend that two semesters of typewriting for personal use be offered if at all possible; but they realize that until additional facilities and teachers are available, many schools cannot provide more than one semester for those students who are not enrolled in a vocational business education program.

Regardless of whether the course is for one semester or for two semesters, "personal-use" typewriting classes should meet five times a week for a whole period.

Content of Course

It has already been pointed out that development of basic skill should receive the primary emphasis in any "personal-use" typewriting class. Rowe[5] cautions teachers about overemphasizing application activities in these classes by saying that "because of the multivaried uses of personal typewriting, it is impossible to teach the many, many application activities."

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[4] Walter R. Kranz, "Junior High School Typewriting," *Business Education Forum*, 21 (November, 1966), 13.

[5] John L. Rowe, "Standards in Typewriting," *Business Education Forum*, 20 (May, 1966), 5-7.

Pepe[6] suggests that a "master" blueprint be developed that will include the best keyboard approach, the best procedures to develop speed and accuracy, and the most commonly used applications in typewriting. He also emphasizes the fact that shorter courses are different from the full vocational courses because some instruction must be omitted to suit the limited time available.

Therefore, it is obvious that when a teacher devotes too much time to application activities, basic skill development is neglected. Rowe[7] believes that most personal-use typists need to receive instruction in the following application activities:

1. How to type a business letter and a personal letter
2. How to address envelopes
3. How to center material vertically and horizontally on half and full sheets of paper
4. How to center titles
5. How to type a term paper or manuscript
6. How to arrange a simple tabulation

Rowe believes that in a semester course of personal-use typewriting, there is little time for other applications if the teacher concentrates on the development of basic skill. The Board of Education of New York City believes that, in general, students' work should be characterized by the following:[8]

1. Correct habits of control
2. Rhythmic stroking as to both time and intensity
3. A critical attitude, resulting from a detailed knowledge and understanding of proper technique
4. A speed consistent with careful performance

Another activity which should receive considerable emphasis in the latter stages of the course is *composition at the typewriter.*

STANDARDS

A perusal of the articles that have been written during the last ten years indicates that there is no one standard that is accepted by business educators. Therefore, some of the standards for personal-use typewriting which were suggested in some of the articles will be given.

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[6] Philip S. Pepe, "The Short-Short Course in Typewriting," *Business Education Forum,* 18 (November, 1963), 13-14.

[7] Rowe, *loc. cit.*

[8] Board of Education of the City of New York, *Typing for Secondary Schools,* (Curriculum Bulletin, 1960-61 Series), p. 1.

Featheringham[9] believes that personal-use typewriting students should type at least 30 words a minute for three minutes with three errors or less, or 40 words a minute for one minute with no more than one error. The *very minimum* usable skill would be 25 words a minute for three minutes with a tolerance of five errors. However, he is of the opinion that students who cannot typewrite more than 25 words a minute lack confidence in their ability; and for this reason, they will make little use of the limited skill they have.

Rowe[10] believes that a one-semester typewriting course for personal use should develop the basic skill to *at least* 30 words a minute.

Mestad[11] believes that college-bound students need a working speed from 50 to 60 words a minute to prepare manuscripts and to compose at the typewriter. However, she states that these rates can rarely be achieved in a one-semester typewriting course.

Reynolds[12] is of the opinion that the minimum skill for both vocational and nonvocational students should be about 50 words a minute of accurate typewriting based on single minutes.

Peak[13] believes that younger students will probably respond better and grow more impressively if initial behavior is assessed in terms of less rigid criteria than those used for older students. She thinks that for the younger learners, stringent requirements should be made toward the terminal phase, rather than the earlier phases, of the typewriting course.

From this information, one can see that a personal-use typewriting course should have as its primary objective the mastery of the keyboard and the mastery of typewriting techniques, together with a *minimum* number of application activities.

Because of widespread disagreement about the many factors involved in personal-use typewriting classes, teachers and administrators should plan carefully for these classes; the *needs of all students* should be considered during this careful planning.

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[9] Richard D. Featheringham, "The Impact of Research: Personal-Use Typewriting," *Business Education Forum*, 21 (November, 1966), 7.

[10] Rowe, *op. cit.*, 5-7.

[11] Marjorie Mestad, "How Can We Meet the College-Bound Student's Typing Needs?" *Business Education World*, 41 (May, 1961), 7-11.

[12] Helen Reynolds, "Typewriting for Business and Personal Use," *Business Education Forum*, 16 (March, 1962), 27.

[13] Yvonne Peak, "Enriching the Junior High School Typewriting Program," *Business Education Forum*, 21 (January, 1967), 23-24.

ADVANTAGES OF PERSONAL-USE TYPEWRITING[14]

1. The teaching of typewriting in the ninth grade will give the student help in the preparation of other school subjects. It seems wise to teach a student valuable skill early in life so that he will reap the maximum benefits from it.
2. Teaching it early will enable the student to determine if he likes the subject and wishes to continue along this line of work.
3. The student who is entering science, math, etc., may not have time to fit it into his curriculum in higher grades.
4. This age level student has much enthusiasm and interest in something as new and exciting as typewriting.
5. Students are stimulated to become more independent in writing original composition work.
6. It supplies a much-needed enrichment of the junior high curriculum.
7. Junior high typewriting may be considered an exploratory course in the vocational guidance program.
8. Typewriting in the ninth grade will develop habits, methods, and skills that will ease the transition to the senior high school.
9. The student can learn much spelling, English, reading, and paragraph construction in a typing class.
10. Typewriting should be offered in the ninth grade because so many students drop out of school after the ninth grade, and they will then have this important means of communication.
11. Typewriting in the ninth grade will help to develop muscular control. The exercise that the student will get in his efforts to improve his typing will strengthen and give control to his fingers.
12. Typewriting in the ninth grade will develop the discipline and personal organization that is so necessary in high school.
13. If typewriting is taken in the ninth grade, it is possible for students to take the more technical courses which are offered only in junior and senior years of high school.
14. It will give students the right start in learning typewriting, rather than developing bad habits of typing by themselves on a machine that is available at home.
15. Students learn good work habits in doing their own work and learn to work with others.
16. A need for correct spelling is created by typewriting. There is a similarity between the printed and the typewritten word, and it is easier to detect a misspelled word.

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[14] John L. Rowe, "Advantages of Personal-Use Typewriting Classes," Mimeographed Materials.

DISADVANTAGES OF PERSONAL-USE TYPEWRITING[15]

1. Ninth grade students lack physical maturity and coordination to gain any great degree of skill.
2. A ninth grade student forms a like or dislike for typewriting before he is able to judge his wants effectively.
3. Ninth grade students require more repetition and more drill than older students. They have such a short attention span that drills must be shorter and they must have them more often.
4. These students are not mentally mature enough to understand and appreciate business letters and problems used in typewriting.
5. Physical immaturity may result in the acquisition of poor typewriting habits.
6. Typewriting is too often presented in a haphazard way in the junior high school.
7. Students who have taken ninth grade typewriting and then again in high school show very little superiority in speed and accuracy over those who have only had it in high school—not enough to warrant its general use.
8. A skill course should be given as near to the time it is to be applied as possible. If the student does not have access to a machine, his skill will be of little value to him.
9. A student in the ninth grade may not do so well in typewriting as he would like; and as a result, interest for typewriting and other business subjects in the future will suffer.
10. A student in the ninth grade does not see an immediate need for the course as older groups do. At this age, he is not writing business letters; also, he shows little interest in tabulations and other business forms. As a result, there is a lack of interest; the fullest benefit is not derived from the course.
11. Ninth grade students are very much in the "tinkering" stage; and although curiosity may be the mother of knowledge, it may also be injurious to the typewriter mechanism.
12. It is the general opinion among high school boys that typewriting and shorthand are subjects primarily for girls. They are almost convinced of being right on this score when a class of ninth grade typists observes the difference in typewriting attainments between boys and girls. If such is the case, it may be possible to preserve the morale of ninth grade boys by directing their attention to a junior or senior class in typewriting. Here the converse is sometimes true.
13. Problem of cost.
14. Problem of scheduling.

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[15] *Ibid.*

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ELECTRIC TYPEWRITING

In 1962, John L. Rowe[1] stated that over 50 percent of all domestically produced full-size typewriters sold in the United States were electric. He also indicated that a larger percentage of these machines were sold to business firms than to schools. These statistics reveal that education has lagged somewhat behind business in the utilization of electric typewriters. In fact, many articles have been written to "sell" business teachers on the use of electric typewriters; some of these titles are as follows:

"Electric Versus Manual Typewriting"
"Results of Teaching Electric Typewriting"
"Are You Still Hesitating About Getting Electric Typewriters?"

Now, most business teachers have been *sold* on the advantages of electric typewriters; therefore, the next most important consideration is improvement of instruction. Teachers realize that if their students are to be vocationally competent, typewriting instruction must be given on both manual and electric typewriters. However, before teachers can improve electric typewriting instruction, they must be familiar with some of the factors that must be considered in teaching electric typewriting.

Lloyd[2] believes that the greatest values of electric typewriters, beyond assuring that vocational learners get proper experience, is the typing habits they encourage. He is of the opinion that as far as skill is concerned, the most fruitful use of the electric occurs in the beginning course where stroking, looking up, and fatigue are problems. Some of the specific advantages are listed below.

1. *Fatigue is reduced and production rate is increased.* Awkward operation is eliminated. Therefore, intensive drives for speed and accuracy can be conducted in beginning typewriting classes. As a result, students can attain higher stroking rates with improved accuracy.
2. *Techniques are developed with greater ease.* The electric keyboard is flatter than the keyboard of a manual typewriter, and the rows of keys are closer. The *carriage-return lever* is located on the keyboard and is taught as a part of stroking. Therefore, the typist is not tempted to take his eyes off the copy; his hands remain on or near the "home row." The *shift key* drills in a typewriting textbook can be used to help students master the electric shift-key technique.

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[1] John L. Rowe, "How to Meet Changing Needs in Typewriting—the Teaching of Electric Typing," *Business Education World*, 44 (January, 1964), 27-29.

[2] Alan C. Lloyd, "Five Checkpoints for Your Typing Classroom Machines," *Business Teacher*, 40 (January, February, 1963), 14.

3. *Uniform typescript is produced.* Regardless of how students strike the keys, a uniform type is always assured.
4. *Stroking.* Manual typewriters require hours of practice for developing correct stroking techniques. However, stroking is not one of the major problems in electric typewriting instruction. Electric typewriters require a miniature stroke, whch is a lighter stroke; the keys are activated with a minimum of effort. Therefore, teachers must prevent students from working too hard on an electric typewriter. Rowe says that diagnosis of improper stroking on an electric typewriter is difficult because even the poorest stroking will result in clear and distinct letters.[3]
5. *Superior copy is produced by multicarbons.*
6. *Remedial instruction is enhanced.* Students who have difficulty with certain techniques can be placed at an electric typewriter for the entire first semester.

All the techniques involved in manual typewriting are also involved in electric typewriting. However, many of the techniques are easier to master on electric typewriters.

Typewriting authorities believe it is best not to attempt any transferring from electric to manuals or manuals to electrics until the student has acquired some degree of typewriting skill. This change should be done preferably in the last term of typewriting. Stella Willins[4] recommends approximately 10 periods for returning to the model originally trained on. She also believes that 5 full classroom periods will usually result in a good working knowledge of the electric — 10 periods in a complete transference of skill. Suggested 10-lesson conversion plans from manual to electric typewriter and from electric to manual typewriter are given on pages 21 and 29 of the booklet, *Electric Typing Methods for the Teacher*. This booklet is published by the Royal McBee Corporation.

One of the primary problems in transferring from an electric typewriter to a manual typewriter is the students' adjustment to the differences on the manual. The following key points must be taught:

1. The manual touch
2. Hand and finger position
3. Manual rather than electric manipulation of machine parts

John L. Rowe[5] states that there is "little conclusive evidence that students type faster or more accurately on electric typewriters."

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[3] John L. Rowe, "The Development of Correct Touch," *Business Education World*, 44 (October, 1963), 29-32, 38.

[4] Stella Willins, *Electric Typing Methods for the Teacher* (Port Chester, New York: Royal McBee Corporation), p. 31.

[5] John L. Rowe, "How to Meet Changing Needs in Typewriting—the Teaching of Electric Typing," *Business Education World*, 44 (January, 1964), 27-29.

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TYPEWRITING FOR THE HANDICAPPED

Today, more and more attention is being given to typewriting for handicapped people. How can typewriting aid the handicapped? Davis, in "Typing Is Good Therapy for the Handicapped," gives the following explanation:[1]

> For some children, typing competence may be the only hope they will ever have of being able to write legibly; for others, it may be their first and only means of communication.
>
> Because of physical impairment, some children lack sufficient muscular control to be able to write; others cannot speak. Probably typng is one of the most important skills these children can learn. Typing is used as a form of therapy for muscular coordination and for finger strengthening in the case of individuals with hand or finger involvement. It develops better muscular control for severely spastic children who have a poor directional sense.

Brown says that typewriting tetachers, insofar as possible, should obtain the following information about handicapped students:[2]

1. The exact nature of the handicap
2. The cause of the handicap
3. The attitude of the individual and his family toward the handicap
4. The degree of interest or the objectives the individual may have in learning to typewrite
5. The possible and probable reactions the individual may expectedly express or feel under certain given circumstances.

Korn lists the following principles that should be considered when establishing a typewriting course for handicapped students:[3]

1. Do not underestimate what physically handicapped students are able to accomplish.
2. Do not set unattainable standards.
3. The teacher and the student must view the handicap objectively and realistically.
4. The teacher must be empathetic, not sympathetic toward the student. The traits that the teacher of the physically handicapped should possess are as follows:
   a. Excellent physical and mental health
   b. High ability to supervise individual study

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[1] Elizabeth K. Davis, "Typing Is Good Therapy for the Handicapped," *Business Education World*, 41 (April, 1961), 20, 38.

[2] Eleanor B. Brown, "Methods of Teaching Typewriting for the Handicapped," *Methods of Teaching Typewriting*, Yearbook of the Eastern Business Teachers Association, (Somerville, New Jersey: Somerset Press, 1965), pp. 258-278.

[3] Bill Korn, "Typewriting and the Physically Handicapped," *Balance Sheet*, 48 (February, 1967), 256-258.

    c. Patience
    d. Talent to adapt to many different situations
    e. The ability to be empathetic
    f. Sound judgment
    g. A thorough knowledge of what is known about the psychology of learning.

5. The teacher should be prepared to abandon previously conceived ideas of teaching methodology if necessary.

During the last few years, many articles have been written that pertain to typewriting for handicapped students. In addition to the Bibliography that is given at the end of this section, please refer to the Selected References, compiled by Eleanor B. Brown, that appeared in *The Journal of Business Education,* December, 1965.

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IMPLICATIONS OF RESEARCH IN TYPEWRITING

HARVES RAHE*

APPROXIMATELY SIX HUNDRED studies have been completed that deal exclusively or mainly with instruction in typewriting. In addititon, hundreds of other investigations have been made that deal partly with typewriting and partly with other phases of business education. Typewriting has been one of the most popular areas of study in business education over the past half century. Yet, much of the research evidence we have is inconclusive; additional research is needed in almost all areas of typewriting.

Although research studies have been made in practically all areas of instruction in typewriting, this article deals with two aspects only: (a) keyboard teaching and learning, and (b) speed and accuracy development.

Keyboard Teaching and Learning

The keyboard learning stage is one of the most important periods in typewriting instruction because it is during this stage that the foundation for the development of correct typewriting technique habits is laid. This foundation is a most important factor in determining future success in typewriting.

Implications of the research on keyboard teaching and learning problems follow:

1. Students who are taught the basic fundamentals of typewriting skill by teacher demonstrations and explanations master the keyboard in less time and more effectively than do students who are not given such instruction. It is therefore particularly important during the keyboard learning stage that a teacher be present in the typewriting room the full class period each day.

2. The skip-around method of teaching the keyboard appears to be more effective than other methods such as the horizontal or the vertical method. The skip-a-round method makes possible the early typewriting of words and sentences, makes use of the strong fingers and easy reaches first, and avoids introducing "similar" keys that frequently are the subjects of substitution errors—i and e, for example—in the same lesson.

3. The typewriting of nonsense letter combinations should be held to a minimum; copy consisting of short, balanced-hand words in phrases,

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*Harves Rahe, "Implications of Research in Typewriting," *National Business Education Quarterly*, 29 (March, 1961), 17-18.

clauses, or sentences should be the predominant type of copy used from the beginning of instruction. However, the teacher may successfully use such drill copy as ftf ftf ftf tf tf tf when teaching new keys and reaches to promote the development of good stroking and correct fingering habits.

4. Students should initially learn the location of each new key by a sight-approach method — by actually *looking* at the keyboard, wall chart, textbook illustration, or blackboard diagram to see the new key's location and the distance and direction the finger must reach to strike it. Students may then make a few trial reaches to the new key while watching their fingers. They should then attempt to typewrite by the *touch method,* using the newly learned key and all other previously learned keys. Students should be allowed in the keyboard learning stage to glance at the keys occasionally to help them learn to control the newly learned keys by touch, but the habit of looking at the keyboard frequently or generally should not be allowed to develop. Such an improper technique habit will be hard to break later on. The use of open, letter keyboards may be helpful in teaching touch typewriting by the sight-approach method.

5. Six to ten class periods may be the optimum amount of time to spend in making the initial presentation of the alphabet section of the keyboard. Extremes, such as using 23 lessons to cover the keyboard or presenting the entire keyboard in one lesson, are not recommended.

6. Pronouncing the letters *sharply* as they are struck *sharply* may be helpful for some beginners, but such practice should be limited so that the typists will be free to strike the keys faster than they can enunciate the letters in the words.

7. The main emphasis in the keyboard learning stage should be on the development of proper typewriting techniques: sharp, fluent, and even stroking; action centered in the fingers, not in the hands or arms; eyes on the copy; comfortable posture; and relaxation. Very little emphasis should be placed on high stroking speed or accuracy of the typescript during the keyboard presentation stage. Early lessons should be typewritten at a controlled, unhurried rate.

8. Control of the number and special character keys *by touch* should be taught in the same manner as are the alphabet keys, distributing their initial presentation, over at least three or four class periods and beginning their introduction at least a week or two *after* the alphabet keys have been presented and fairly well learned. The pipe organ method of operating the number keys may be satisfactory for those

typists who typewrite large blocks of numbers that are not intermingled with words. For all other typists, however, the conventional method of typewriting numbers and alphabet lettetrs *by touch* is recommended. Frequent review drills, and timed writings on the number and special character keys should be given to develop and maintain number-row mastery. Touch control of the number keys is essential for most typists.

9. Teachers should be cognizant of the fact that beginners need time to perfect their typewriting techniques, increase their speed, and improve their accuracy. As a result, teachers will be patient and helpful, applying the proper amount of pressure to those students who need it and withholding pressure from those whom it would harm. Adjusting the intensity of the motivation to the needs of individual students is most important. Praise should be liberal, and students should feel that they have improved their skill each class period.

10. Students who have previously used a hunt-and-peck method *can* overcome such an inefficient technique and learn proper fingering and touch operation of the keyboard. Their job of unlearning an incorrect technique and substituting a correct technique for it may be more difficult than the job of merely learning a new skill; the teacher and the learner should recognize this situation and, as a result, put forth sufficient effort to accomplish the task.

11. One or two review lessons may profitably be given during the keyboard learning stage in which no new keys are introduced during the class period.

12. All keys previously taught should be reviewed *each* class period before any new keys are introduced.

13. Students who persist in watching their fingers should retype keyboard drills that appear in earlier lessons. Requiring such practice is not a punishment but a remedial device to eliminate some of the causes of keyboard watching — insecurity, lack of mastery of preceding lessons, lack of confidence in one's ability to typewrite by touch.

14. Students should spend the major portion of each class period actually typewriting. Several short "rest" breaks, however, should be distributed throughout the class period during which time the teacher will explain problems and procedures, demonstrate techniques, and motivate the students.

Speed and Accuracy

Speed and accuracy are necessary when typewriting straight copy, *and* when typewriting and planning practical business and personal papers such as letters, tabulations, manuscripts, invoices, and envelopes. Research should identify the methods of procedure to use in building speed and accuracy. Some of the implications of the research on the development of speed and accuracy in typewriting follow.

1. It is practicable to emphasize speed before accuracy in elementary typewriting; however, the most recent trend seems to be toward a technique-emphasis approach with little emphasis on speed or accuracy development until correct typewriting techniques have been developed.

2. The development of rapid and accurate typewriting skill depends primarily on correct fingering and stroking techniques and on a *strong desire* to attain a high level of speed with control. The development of correct techniques, which are basic to the development of speed and accuracy, need to be stressed *emphatically* by teachers; and teachers must become aware of and skilled in conducting drills specifically designed to develop such basic techniques as sharp, rhythmic stroking and skillful carriage return.

3. Students who typewrite speed sentences, call-the-throw drills for speed, selected-goal-and-guided writings for speed, and other specially devised speed-building drills seem to increase their speed more than do students who simply typewrite "all-purpose" exercises and practical typewriting problems but no specific speed-building drills. Special-purpose drills to improve basic technique, to review the keyboard, and to eliminate particular types of errors (transposition errors, adjacent-key errors, opposite-hand errors, and so on) are effective in developing speed and accuracy.

4. To gain speed, the teacher and the students must "push for speed." Usually, speed does not develop unless there is a determined effort made to gain it. There is no substitute for intensive and extensive practice that is purposeful and that is properly conducted. Teachers may help students increase their typewriting speeds by pacing them, by praising and encouraging them, by keeping them informed of their progress, by recognizing their successes, and by motivating them in other ways.

5. Intermediate speed goals should be set for students, usually on an individual basis. As soon as one goal is reached, another should be set, but care should be taken so as not to lessen the satisfaction that should accompany the attainment of each goal.

6. Drills for speed should be conducted separately from drills for accuracy. After the students have pushed themselves to as high a speed level as seems possible, they should drop back a bit to "consolidate their gains" — regain control and accuracy.

7. Short timings (one-half, one, and two minutes in length) should be used for building speed and accuracy. Then an attempt should be made to transfer that newly acquired skill to longer timings (five and ten minutes). Also, the transfer of speed and accuracy to practical typewritten papers should be facilitated by (a) demonstrating and explaining the most time-saving procedures, and (b) by giving timings on the parts and then on the wholes of letters, tabulations, and the other practical typewritten papers.

8. Unison typewriting regulated by the teacher or by a metronome may have value in eliminating errors caused by jerky and uneven typewriting, but the over-use of unison typewriting drills will deter speed development because speedy typewriting on the expert level is not evenly spaced typewriting. Expert typewriting is free from hesitations and jerks, yet it varies in speed as the typist moves from easy to difficult letter sequences. Rhythm in typewriting is of great value in the development of speed and accuracy; therefore, the teacher should be able to describe and demonstrate proper typewriting rhythm. He should provide also the proper motivation and drills to insure its development.

9. Highly repetitive practice on words or groups of words that have been typewritten incorrectly, unless the particular errors are *persistent* ones, is of doubtful value. Chance errors (those that do not recur over and over again) need not be singled out for special remedial practice. The crux of the matter here is to learn the *causes* of errors and to do something to eliminate the causes. Causes of typographical errors may be inattention, carelessness, typewriting too fast, one or more faulty keyboard techniques, and so on. Comparing one's technique with the points listed on a technique analysis chart may be beneficial in bringing to the attention of students their faulty techniques that may be causing errors.

10. Recording typographical errors made on a chart is of doubtful value. The time required to record errors on such charts might better be spent typewriting.

11. Beta practice (typewriting an error deliberately a number of times to eliminate it) seems to be of less value than Alpha practice (typewriting error-words a number of times correctly).

12. Inaccuracy caused by excessive speed might be eliminated by temporarily spelling words aloud or silently while typewriting them, thus giving full attention and emphasis to every letter struck and evening the rhythm and power behind each stroke.

13. Tachistoscopic presentation of copy seems to be helpful to the learner in developing accuracy as well as speed.

14. Typewriting warm-up exercises and performing finger gymnastics seem to help students typewrite with greater speed and accuracy from the beginning of the class period. However, there is some doubt as to the value of warm-up practice in typewriting.

15. Some typewriting errors could be eliminated if the reaching-out or reading-ahead tendency could be reduced or eliminated. Students should be taught to read copy carefully and at a speed that matches their typewriting rates. Close attention must be paid to the exact sequence of letters in each word. Poor reading habits result in spelling, punctuation, and paragraphing errors as well as the addition, omission, and transposition of words.

Correct habits of reading for typewriting require the typist to move his eyes smoothly and continuously along the lines of copy, reading slowly, carefully, and attentively. Getting a stimulus for striking keys, not comprehension, is the major purpose of reading for typewriting. But paying attention to the thought of the material being typewritten also is necessary if the typist is to typewrite sense regularly and consistently.